GAS JOURNAL, MAY 18, 1938

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Editorial Notes

Greater Unity

THE Presidential Address of Sir David Milne-Watson at the Annual Meeting last week of the National Gas Council was especially notable as an indication of the growing strength of the Gas Industry resulting from joint working, sinking of individual prejudice, and adherence to a common policy. Numerically the strength of the Council was never greater; it now represents 95% of the gas made in the British Isles. Not merely in numerical strength, however, has the Council gained during the year. It has gained also, we feel sure, in the fuller recognition by individual members that progress can best be achieved, difficulties best solved, and new avenues best explored by presenting a united front and speaking with a common voice.

That through co-operation—and we should like to see this co-operation 100% instead of 95% effective—a great deal has been accomplished in an eventful year is obvious from Sir David's Address, which in the nature of things could touch on a few only of the matters dealt with, questions of policy considered, and developments made during the twelve months. In regard to policy, one expected reference to possible legislation following the recommendations made by the Joint Select Committee on Gas Prices. To give effect to these recommendations legislation would, of course, be necessary. The attitude the National Gas Council has taken—and we think it will be generally endorsed—is that any legislation should either incorporate all the recommendations of the Committee, with one modification, or not be introduced at all. Legislation without the right to impose a minimum charge, or with restrictions not mentioned in the Committee's Report, would, as Sir David pointed out, be of no use; and the Industry can have no wish to involve itself in added restrictions and further complications. Then, as indication of the weight of the counsels of a united Industry, was the reference to the amendments made to the Hire Purchase Bill, as a result of which this measure is now innocuous as far as the Gas Industry is concerned. We have kept our readers fully informed of the steps taken to safeguard the Industry, and in last week's issue of the "JOURNAL" we published a summary setting out clearly the main provisions of the Bill as amended, a summary which will prove most helpful. We may remind readers that originally the Bill provided that any hirer might return the goods after paying one-third of the hire purchase price. As it now stands, it will be necessary for the hirer to pay the whole of the installation charges of gas appliances, together with one-half of the hire purchase price, before he is entitled to return the goods. This outcome, the result of representation by the Conjoint Conference of Public Utilities, in the deliberations of which body the Gas Industry plays a very active part, can be regarded with every satisfaction.

Regional Planning

WE remember acutely the independent voice of opposition when the notion of regional planning to forward the industrial sales of gas was first advanced. What we want, said the opposition, is sturdy independence. What is necessary, replied Sir David Milne-Watson, who was responsible for the establishment of regional plans to develop the industrial use of gas, is sturdy co-operation. The history of the Industrial Gas Development Centres occupies few years, but the effect of this effort towards co-ordination has been felt throughout the Industry, though not every undertaking realizes the fact. Information, specific and general, on the employment of gas in industrial processes has been given freely by individual undertakings particularly associated with the development of gas in industrial areas. The data have been collated, and disseminated to all members of the Development Scheme. Within a few years investigation and research into the industrial uses of gas have improved existing practice and uncovered new fields. It is true to say that without this concentration on the industrial load many new products would be unattainable economically to-day. This development movement has had three important and significant results. It has shown, in the first place, the variety of uses to which gas can be applied industrially and commercially. It has shown that even in a residential area "industrial" applications exist and can be successfully exploited. Undertakings operating in areas which at first blush were "unpromising" have, directly as a result of this co-operative scheme, built up a good industrial business. The second result has been to throw into the limelight those undertakings—fortunately comparatively few—which pin their faith to sturdy independence, which believe in a flat rate charge for gas, which shut their eyes to possibilities, and which, in a word, are a drag on the rest of the Industry.

To our mind the third result is not the least important. The Industrial Development Centres have broadened their

base. Their work has demonstrated that co-operation must not be selective, that what can be, and has been, accomplished in the industrial sphere can be, and must be, translated into the domestic sphere. Already the Industrial Development Centres have in many instances become all-embracing "development centres." The Northern Centre is a singularly good example; it has abandoned the policy of splendid isolation in favour of forceful co-operation, and in doing so has lost nothing of its vitality or independent spirit. In his Address Sir David asked whether undertakings not subscribing to the development centres could, in fact, afford to carry on without their aid. His query, we suggest, allows of only one true answer.

Provided we all work together there can be no question about the future prosperity and great expansion of the Gas Industry. There were so many cheerful notes in Sir David Milne-Watson's Address. He mentioned, for example, the decision of the War Department in regard to the employment of gas in the new establishment which is being erected in the area of the Swindon United Gas Company. This contract—the largest order ever placed for gas by the War Office—is for about 150 million cu.ft. annually, as we have announced in the "JOURNAL," and it is for a period of no less than 21 years. This in itself is cause for gratification, but the importance of the decision will be the more readily appreciated by reference to Sir David's observation that he had reason to believe that the War Department would be willing to pursue the policy of employing gas for new and reconstructed Army depôts and barracks throughout the country wherever they could rely upon obtaining gas on favourable terms. We hope that flat-rate undertakings will note the phrase "favourable terms," which, by the way, is not synonymous with uneconomic terms.

Smoke Abatement

THEN there is the problem of smoke abatement, referred to by Sir David. Here the Gas Industry has a real opportunity, an opportunity which no other heating service possesses. To our mind—we have expressed this view before, and not on one occasion—the Industry does not make nearly enough of this opportunity. "Opportunity" is defined in the dictionary as a "good chance." In assisting in smoke abatement we suggest that the Gas Industry has a chance of doing good, of benefiting the community; and we think that this chance is being to some extent ignored. It is not a question of opportunism, of putting expediency before principle. The Gas Industry has two smokeless fuels to offer. We cannot think that in 1938 the public demand is for smoke. Yet it seems to us that in offering its alternatives to a smoke-laden, unhealthy, and financially wasteful atmosphere the Industry is, in general, apathetic. Only recently we were glancing through the accounts of the National Smoke Abatement Society. Through central channels the Gas Industry makes a reasonable contribution, but how few individual gas undertakings add their money-support to a Society which with most limited resources but ample courage has sought, recently with more success, to bring about not only the public's recognition of the smoke evil, but the public's knowledge that it need not exist. The Gas Industry can prove conclusively that the individual cannot suffer financial hardship, but on the contrary can enjoy financial gain, by using gas and coke in place of raw coal. Why is it that so few gas undertakings support the National Smoke Abatement Society?

Just one more point of comment on Sir David's Address. It arises from his remarks concerning the setting-up of a committee to consider whether the work of the numerous committees, sub-committees, panels, and sub-panels does or does not overlap. "As an Industry," he said, "we have good reason to congratulate ourselves upon the efficiency of the National Bodies which we have created to represent our various interests, but, however good our organization may be, it may still be capable of improvement." In saying this Sir David had cast his mind from the N.G.C. to the British Gas Federation, and it is clear to us that the Federation is to be dynamic, not static; that deed, after word, is its concern. About committee work in general in the Industry, however, should this be shouldered by the few—and we find the same names on a host of committees dealing with a wide variety of unrelated subjects and interests—or should there be a more general, more eager, and perhaps more potent participation? Our view of committee work in the Gas Industry at present is that there is too much criticism of those who give their services ungrudgingly. Critics must talk. Is it too much to ask that on occasion critics might act?

S.B.G.I.

IN all respects the Annual General Meeting of the Society of British Gas Industries last Wednesday, followed in the evening by a dinner marked by the presence of many guests distinguished in the life of the Nation and leaders in all phases of the Gas Industry's activities, was eminently successful.

At the meeting the Council were able to present a most encouraging report of work accomplished, and Sir Harold Hartley gave an inspiring Address indicating the magnitude, scope, and vitality of our Industry, and pointing to the unification of its interests in recent years. We think that unity of purpose was the keynote of the whole meeting, and there can be no doubt that it was the formation of the British Gas Federation, in the counsels and deliberations of which body the S.B.G.I. has an important and rightful share, that made possible this full measure of co-operation.

Let us take a glance at the Society's work, which becomes more and more necessary to the success and prosperity of the Gas Industry. First consider the contributions made in pounds, shillings, and pence to exhibition and display. This support "is given in loyalty to the Industry rather than in expectation of anything more than a negligible direct financial return on the expenditure involved." We quote this from the Council's report and would give emphasis to it, for it is only recently that due credit has been given to the Society for its efforts in this direction. The British Industries Fair, the Ideal Home Exhibition, the Empire Exhibition at Glasgow are outstanding examples of events in which the help of the Society has been sought and has been readily extended on a scale in keeping with the Industry's magnitude and prestige. Then there is the Gas Gallery which is to be organized as a permanent educational display at the South Kensington Science Museum. Here again the assistance of the Society has not been asked for in vain.

It is not, however, merely by enlisting financial support that such excellent progress has been made. Through the channel of the B.G.F. the experience, technical and otherwise, of members of the Society has been made available for the benefit of the Industry as a whole. Their expert knowledge has been of immense value in the framing of new regulations—such as those concerning the installation of gas service and supply pipes and the revised instructions for fixing instantaneous water heaters which have been issued during the past year. In other directions, too, the experience of members of the

S.B.G.I. has proved, and will increasingly prove, essential. We are thinking of the Society's representation on the Gas Industry Section of the British Standards Institution, on the British Refractories Research Association, on the Joint Lighting Committee of The Institution of Gas Engineers. In regard to lighting, there can be no doubt that the attention concentrated by the Society on this field, and the keenness and enterprise of the manufacturers of gas lighting equipment, have played a most important part in the notable advances made during the past year and exemplified by the displays of modern gas lighting at the Folkestone Conference of the Association of Public Lighting Engineers in September last.

An Increasingly Important Asset

As we have said, the report of the S.B.G.I. is in every way encouraging, and it is apparent that the manufacturers and contractors are pulling their full weight through the Society for the benefit and advancement of the Industry. Much has been accomplished in a comparatively short time on the basis of co-operation; and we feel sure that with the establishment of this co-ordination, with a sympathetic attitude towards and understanding of one another's problems and difficulties, we shall go ahead more rapidly in the future. Membership of the Society increased by 13 during the past year, bringing the total of new members for the last three years to 50. Moreover, interest is being broadened by the addition recently of three new Sections covering Water Heaters, Scientific Instruments, and Coke Ovens. The last is particularly to be welcomed in view of the desirability of bringing closer together the Gas Industry and the coke oven industry, which have so many common problems. The Society, in brief, becomes an increasingly important asset of the Gas Industry. Closer association between supplier and purchaser is the only sound basis on which to effect development and lasting progress.

In his Presidential Address to the Society Sir Harold Hartley reviewed the prospects of the Industry from the aspects of scientific outlook, new markets, and organization, and showed in clear fashion how the Industry has kept abreast of the main changes which have taken place in modern industry. The Address is one to inspire faith in the Industry's future. Sir Harold spoke of the continuous progress which has been made both on the production and on the utilization sides and the combined effort of plant manufacturers and undertakings to make the best use of these developments. Changes are so frequent and adjustments to new conditions have to be made so rapidly that we are perhaps apt to forget what a vast deal has been accomplished since the War; and for this reason alone the Address is helpful in giving in small compass a picture of the progress made. During this period the thermal efficiency of the carbonizing process has been increased from 70 to 86%. Improvements in refractories and construction, coupled with scientific control, have greatly increased the life of plant. Introduction of methods of mechanical handling has reduced the labour employed in carbonizing alone by 75%; on the other hand, a new standard of service has necessitated the employment of a much greater number of skilled workers in the distribution and sales sections. Wholly automatic water gas plant, gas drying, improvement in gas washing plant, removal, or at any rate partial removal, of organic sulphur—these are among the advances made in gas manufacture. Improvements in the efficiency of gas appliances represent a saving to the consumer equivalent to a price reduction of 2d. per therm. The present annual output of 2,000,000 gas appliances has involved doubling production during the past ten years. In every branch of its activity the Industry has called on science for help in meeting its difficulties, and the stress of competition has stimulated its reliance on research. Industrially and commercially the Industry has not only entered new markets; it has created them. It has introduced a new standard of warmth and comfort in the home.

These were some of the points made by Sir Harold Hartley in his Address; and we cannot conclude this note better than by the following quotation from it: "Throughout the century and a quarter of its existence the carbonizing industry has shown its vitality by its growth and its power of adaptation to new demands and changing circumstances. I am convinced that this vitality and growth will continue, and that, by virtue of the volume and importance of its products and the economy it represents, the Industry must form a permanent part of our industrial fabric."

Readers Must Help

Proposing the toast of "Journalism" at the annual festival dinner of the Newspaper Press Fund, Mr. Anthony Eden, M.P., brought into the limelight a point which does not invariably receive the attention that is its due, though so far as we ourselves are concerned we are well satisfied with things as they are. Assuming that every intelligent man and woman wants our Press not only to be the best in the world, but to be the best possible, Mr. Eden urged that it is not fair to leave it entirely to the journalists to supply it; readers must help. He had, of course, in mind the general newspaper Press, but the remark that readers must help applies with equal force to the sectional Press. The critics of journalists can usually be placed in one of two categories—those who imagine writers for the Press to be endowed with superhuman powers of penetration, or those who regard them as being less well equipped with intelligence than their fellow men. No doubt, the truth is to be found in a happy mean. Mr. Eden showed that the successful journalist must possess high qualities. But, after all, he is only human, and must constantly find himself dependent upon others for that degree of accuracy which is so inflexibly demanded of him. Let us repeat that we ourselves have small cause for complaint of lack of assistance from our readers. We are not alluding to support in the form of subscriptions—welcome though that is to any paper—but to that painstaking consideration which prompts the furnishing of accurate information upon matters of general interest in advance of publication, rather than the pointing out of avoidable errors after they have appeared in print. Because our readers are our friends, we receive assistance in great measure, which we readily take this opportunity of gratefully acknowledging. But as nothing in this world is perfect, we draw the attention of those who may read these lines to the declaration of Mr. Anthony Eden that, if our Press is to be the best possible, *readers must help.*

Benzole Production in Australia

There is an interesting item of news in the Bulletin of the National Gas Association of Australia concerning the extraction of benzole at gas-works. The Federal Ministry have put forward a proposal that gas-works throughout the Commonwealth should be equipped to recover and treat this by-product, which at the moment is produced only in New South Wales. Tentative estimates indicate that 3,000,000 to 4,000,000 gallons of benzole per annum could readily be recovered. Co-operation with State Governments is being sought by the Federal Ministry to overcome difficulties caused by gas legislation. At this stage it is not known whether special assistance in the shape of tax concessions or reduction of import duties on equipment required will be forthcoming from the Government. It is stated that negotiations will shortly be undertaken with the principal gas companies with

the object of inducing them to make the plant alterations necessary for the production of benzole.

How is It Done ?

In the current issue of the *Electrical Times* "Hotspot" gave particulars of the equipment of a new block of "all-electric" flats, 230 in number, opened this week at Somers Town. He explained that the appliances consist of an electric cooker, hired at a charge of from 4½d. to 7½d. a week, according to size of flat; a calorifier hired at 6d. a week (or alternatively an electric copper at 3d. a week); an iron at ½d. a week; a kettle at 1d. a week, and a radiator at 1d. a week. Meter rent is charged at 2d. a week and there is a standing charge of 5d. per week. The price of current is ½d. a unit. The consumer starts off, then, with a charge of anything from 1s. 5d. to 1s. 11d. a week before he uses any electricity. But, said "Hotspot," the average inclusive weekly charge per family of five for all services—including, of course, lighting—is about 3s. 6d. a week. In other words the consumer has available for electricity 2s. 1d. or 1s. 7d. a week, which means that he can purchase 50 or 38 units. How it is possible to obtain the services of lighting, cooking, heating, and water heating for this amount of energy we cannot imagine. If, for example, we allow each person 5 gallons of hot water a day, and credit electricity with 100% efficiency, 50 units would be needed each week for this purpose alone. And is the penny-a-week radiator the sole source of heat for the flat ?

Personal

The Directors of the Barnstaple Gas Company have elected Mr. J. H. LOWTHER to the Board and appointed him Managing Director of the Company. Mr. Lowther has been in charge of the Bideford Gas and Coke Company, of which he has now been elected a Director and appointed General Manager and Secretary, for a number of years. Mr. W. F. DIBBLE, the newly-appointed Secretary of the Barnstaple Company, has been with the Undertaking for many years. Both appointments are subsequent to the retirement of Mr. F. L. SCHOFIELD, to which reference has already been made in these columns.

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Employees of the Prestonpans Gas Company have made a presentation to Mr. WILLIAM GILCHRIST, prior to his departure to take up the duties of Manager at West Wemyss.

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Mr. E. F. GORMAN, recently in the employ of the South Metropolitan Gas Company, has accepted an appointment with the Colonial Gas Association, Ltd. Mr. Gorman is the son of the late Mr. F. G. Gorman, formerly Chief Engineer of the South Suburban Gas Company.

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Mr. W. M. HENDERSON, Assistant Manager to the Cowdenbeath Gas Company, has been appointed Manager of the Dalkeith Gas Light Company. He will succeed Mr. R. HAMILTON, who will retire shortly. Mr. Henderson, who has been three years at Cowdenbeath, received his training with Edinburgh Corporation Gas Department at Granton. Previously he was with the Primitiva Gas Company at Buenos Ayres.

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Mr. W. C. CAMPBELL has been appointed Engineer and Manager to the Galashiels Gas Light Company. He is at present Engineer and Manager with the Buckie Gas Light Company.

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Mr. A. J. WEST has been appointed to a seat on the Board of Parkinson & Cowan, Ltd. He has served the Company and its predecessors for forty-two years and for some time has been a Director of Parkinson & Cowan (Gas Meters), Ltd., and The Gas Meter Company, Ltd.

Obituary

We regret to report the death on May 10 of Mr. WILLIAM HENRY LOCKE, Director of General Gas Appliances, Ltd. Mr. Locke, who was 67 years of age, was one of the original Directors of General Gas Appliances, Ltd., and was well known to many in the Midlands and Eastern Counties, where he had represented the firm for the past 20 years.

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The death has occurred at Sutton Bridge, Lincolnshire, of Mr. WILLIAM HENRY DICKER, Manager of the Sutton Bridge Gas and Coke Company for the past thirty years.

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The funeral of Mr. STANLEY BROTHERHOOD, Governing Director of Messrs. Peter Brotherhood, Ltd., of Peterborough, took place on May 11 at Thornhaugh, near Peterborough. At the same hour as the funeral a memorial service was held at All Saints', Paston, Peterborough, in which parish are situated the works of the firm. The congregation at this service included more than 300 employees of the firm.

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It is with regret that we announce the death of Major CHARLES GEORGE LYON, J.P., Chairman of the Yorkshire Tar Distillers, Ltd.

Letters to the Editor

The Clinical Gas Lamp

SIR,—The Clinical Gas Lamp, on the usefulness of which for treatment of inflammations Dr. Morris, M.O.H. of Neath, reports so favourably, was designed in the laboratory of Radiation Ltd. When I first suggested the utility of gas for infra-red ray treatment the laboratory of the Gas Light and Coke Company very kindly made up to my design an apparatus consisting of a ring of small incandescent mantle burners backed by a reflector. This proved efficacious, but trouble arose through the breakage and replacement of mantles which made the design not a practical one for general use. Hearing of this trouble the research workers in the laboratory of Radiation Ltd. designed a lamp, the ease and safety of use of which, and its cheapness, make it suitable for employment both in clinics and in the home. I was glad to see Dr. Morris' confirmation of the good effects of the lamp on abscesses, boils, &c. (reported in your issue of May 4).

Some lamps of this design were presented to the St. John Clinic and their utility tested by me.

The famous surgeon, Bernhard, treated the inflammatory conditions of war wounds by exposure to sun and air at St. Moritz; no less good results can be obtained by the use of radiation from a lamp such as the clinical gas lamp in place of dressings. The lamp gives off in addition to dark heat some red and short infra-red rays which penetrate the skin more deeply than the former or longer infra-red rays. These last do not penetrate but warm the surface of the skin, whence their heat is conducted in. The penetrating rays act best in exciting flushing and transudation, taking away pain and promoting healing.

Yours, &c.,
LEONARD HILL.

St. John Clinic and Institute of Physical Medicine,
Ranelagh Road, S.W.1,
May 11, 1938.

A.T.B. Control

SIR,—In the recent Paper entitled "A.T.B. Number Control of Town Gas" there was an error in the manuscript. The tenth paragraph on p. 371 of the "JOURNAL" for May 11, in which the Paper was published, reads: "The expenditure involved was round about £600 with an increase in operation charges." This should read. "The expenditure involved was round about £600 with *no* increase in operation charges."

Yours, &c.,
PHILIP G. G. MOON,
General Manager.

Bournemouth Gas and Water Company,
May 16, 1938.

International Engineering Congress

Glasgow, June 21 to 24

The following Addresses of particular interest to Gas Engineers will be delivered during the International Engineering Congress at the Empire Exhibition, Glasgow, on Wednesday, June 22, at the Sessions commencing at 11 a.m. and 11.55 a.m. respectively: "Recent Developments of the Gas Industry in Canada," by John Keillor (Manager and Gas Engineer, British Columbia Electric Power and Gas Corporation, Ltd.); and "Gas—Yesterday, To-day, and To-morrow," by Sir David Milne-Watson, Bart., D.L., LL.D. (Chairman of the British Gas Federation).

The chair at the Sessions will be taken by Mr. R. Robertson, M.Inst.C.E., at present Vice-President of The Institution of Gas Engineers, and a Vice-President of the Congress. The Luncheon arranged by the B.G.F. at the Empire Exhibition will immediately follow the Address by Sir David Milne-Watson.

The Institution of Gas Engineers

Programme of 75th Annual General Meeting—May 31 to June 3

The 75th Annual General Meeting of The Institution of Gas Engineers will be held at the Institution of Civil Engineers Great George Street, London, S.W. 1, from May 31 to June 3 next, under the Presidency of HAROLD C. SMITH (Chief Engineer to the Tottenham and District Gas Company). We publish below full details of the programme.

TUESDAY, MAY 31.

10. 0 a.m. Opening of the 75th Annual General Meeting at The Institution of Civil Engineers, Great George Street, London, S.W. 1.
Welcome to Representatives from Overseas.
Adoption of the 75th Annual Report and Accounts. (*Communication No.* 178.)
Scrutineers' Reports of the Ballots.
Presentation of Medals.
Presidential Address by Harold C. Smith, M.Inst.C.E., M.Inst.Gas E., Chief Engineer, Tottenham and District Gas Company. (*Communication No.* 179.)

11. 0 a.m. to 12 noon Paper on "Considerations upon the Processing of Coal," by E. V. Evans, O.B.E., M.Inst.Gas E., F.I.C., Chairman, Research Executive Committee, The Institution of Gas Engineers. (*Communication No.* 180.)

12.15 p.m. Photograph of the 75th Annual General Meeting on the Horse Guards Parade, St. James's Park, London, S.W. 1.

12.45 p.m. President's Luncheon in the Ballroom of the Savoy Hotel, Victoria Embankment, London, W.C. 2.

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3. 0 p.m. Paper on "Carbonization from a Plant Designer's Viewpoint," by F. B. Richards, M.B.E., M.Inst.C.E., M.I.Mech.E., M.Inst.Gas E., Chairman of the Woodall-Duckham Companies, London. (*Communication No.* 181.)

4. 0 p.m. to 4.30 p.m. Submission to Corporate Members of proposals for increasing the Revenue of the Institution.

9. 0 p.m. to 2. 0 a.m. Reception and Dance in the Great Room of Grosvenor House, Park Lane, London, W. 1.

WEDNESDAY, JUNE 1.

10. 0 a.m. Paper on "Coke and Its Scientific Uses," by F. J. Eaton, Ph.D., B.Sc., A.I.C., Gas Light and Coke Company. (*Communication No.* 182.)

11. 0 a.m. General Meeting of Contributors to the Benevolent Fund of The Institution of Gas Engineers.

11.15 a.m. to 12.15 p.m. Paper on "Cast Iron Research and the Gas Industry," by J. G. Pearce, M.Sc., M.I.Mech.E., F.Inst.P., Director and Secretary, The British Cast Iron Research Association. (*Communication No.* 183.)

2.15 p.m. to 6. 0 p.m. Visit by Motor Coach to the Fuel Research Station, East Greenwich, London, S.E. 10.
Ladies' visit by Motor Launch "Royal Princess" to the Port of London, with tea aboard. Members may participate.

THURSDAY, JUNE 2.

10. 0 a.m. Paper on "From Holder to Burner," by W. J. Sandeman, M.Inst.Gas E., General Manager, Croydon Gas Company. (*Communication No.* 184.)

11. 0 a.m. Paper on "Works Control," by W. Hawkyard, M.Inst.Gas E., M.I.Chem.E., Works Engineer, Willoughby Lane Works, Tottenham and District Gas Company. (*Communication No.* 185.)

12 noon to 12.15 p.m. Concluding Business of Meeting.

12.45 p.m. Council Luncheon to the President in the River Room of the Savoy Hotel, Victoria Embankment, London, W.C. 2.

(*a*) 2. 0 p.m. to 6. 0 p.m. Visit by Motor Coach to the Willoughby Lane Works of the Tottenham and District Gas Company, and to the Gothic Works of
(*b*) 2.15 p.m. to 6. 0 p.m. Glover & Main, Ltd., Edmonton:
(*a*) *Via* the Hertford Works of the Tottenham and District Gas Company, or
(*b*) Direct. Ladies may participate.

FRIDAY, JUNE 3.

VISIT TO SOUTHAMPTON.

WATERLOO—SOUTHAMPTON—SOLENT—NEW FOREST (BEAULIEU ABBEY—LYNDHURST)—SOUTHAMPTON—WATERLOO.

Morning: Waterloo (9.19 a.m.) by special train to Southampton Central Station.
Visit by Motor Coach (11 a.m. to 12.30 p.m.) to:
(i) Southampton Gas-Works, or
(ii) Gas Showrooms and Fittings Department of the Southampton Gaslight and Coke Company, or
(iii) S.S. "Empress of Britain."
Luncheon (12.45 p.m. to 2.15 p.m.) at the Guildhall.

Afternoon: Motor Coach (2.20 p.m.) to either:
(i) Southampton Pier for a Cruise on the Solent in M.V. "Medina," with tea aboard, or
(ii) New Forest Tour, including a visit to Beaulieu Abbey, and tea at Lyndhurst,
Returning to Southampton Central Station.

Evening: Southampton Central Station (5.55 p.m.) by special train (on which supper will be served) to Waterloo (7.27 p.m.).

Ladies may participate. The arrangements permit of the issue of tickets omitting the special train journey and/or the visits, cruise, and tour. The railway ticket will entitle the holder to travel on the special train or on any ordinary train to and from Southampton on the Friday. The ticket may be converted to a summer return ticket on payment of a supplement of 4s. 11d. at Southampton Central Station.

National Gas Council

Meeting of the Central Executive Board

A meeting of the Central Executive Board of the National Gas Council was held at the May Fair Hotel, Berkeley Square, W. 1, on Tuesday, May 10. The Chair was taken by Sir DAVID MILNE-WATSON, Bart., LL.D., D.L.

Nomination of Candidate for the Position of President.—Sir David Milne-Watson was unanimously nominated President for the ensuing year, in accordance with Rule 4 of the Constitution, for recommendation to the Annual General Meeting to be held later that day.

List of Members Appointed to the Central Executive Board.—A list of the members appointed to serve on the Central Executive Board was submitted.

Resignation of Mr. F. P. Tarratt.—A letter from Mr. F. P. Tarratt was read, conveying his resignation from the National Bodies upon his retirement from the position of Chief Engineer to the Newcastle-upon-Tyne and Gateshead Gas Company. The Chairman referred in warm terms to the work done by Mr. Tarratt in the past on behalf of the Council, and it was unanimously agreed that a letter be sent to him thanking Mr. Tarratt for his valuable services to the Gas Industry and wishing him happiness in his retirement.

Annual Report and Accounts.—The Annual Report and Accounts for the twelve months ended March 31, 1938, were approved, as circulated, for submission to the Annual General Meeting.

The National Smoke Abatement Society.—Approval was given to the payment of a subscription to this Society.

Coal.—(*a*) *Coal Bill.*—It was stated that a report on the position had been circulated to members of the Board, from which it would be seen that while the Government had refused to institute any form of statutory control over the coal monopolies themselves, the opposition to the Bill had resulted in the position of consumers being undoubtedly better than prior to its introduction.

(*b*) *Coal Prices* (*Departmental*) *Committee.*—It was reported that a Departmental Committee had been set up "To enquire into the organization of coal, coke, and manufactured fuel; to investigate the various items which make up the differences between the prices received by the producers and those paid by the consumers, and to make recommendations."

A Committee was appointed to deal with the question—should it arise—of giving evidence before the Departmental Committee.

Hire-Purchase Bill.—It was stated that a short report had been circulated to members with regard to this Bill. It would be seen that on the Report Stage the Conjoint Conference of Public Utility Associations had secured the insertion of provisions in the Bill, so that the hirer would not now have any right to determine the agreement and return the apparatus to the undertakers until the whole of the installation and fixing charges had been defrayed, together with one-half of the hire-purchase price.

Middlesex County Council (*General Powers*) *Bill.*—A report on this Bill had also been circulated, and it was agreed that the efforts of the Conjoint Conference of Public Utility Associations to secure protection for Public Utility Undertakers in the County of London in regard to this Bill had been highly satisfactory.

Federation of British Industries.—It was reported that, at a meeting of the Executive Committee of the Federation of British Industries, it had unanimously been decided to co-opt Mr. Ogilvie as a member of that Committee.

Date of Next Meeting.—It was agreed that the next meeting of the Board should take place on Tuesday, July 12.

Women's Gas Council

Warrington Branch.

The opportunity was taken of the occasion of the Manchester District Conference of the B.C.G.A. at Warrington on May 5 to hold a meeting of the local branch of the W.G.C. in the afternoon. Miss K. M. Halpin addressed the gathering, and a film display and tea followed. Miss Halpin was thanked by Mrs. Cook and Mrs. Burton.

News of the Week

The Lighting of Main Streets is being converted from electricity to gas by the Hebburn-on-Tyne Urban Council.

An Increase of 124% in the number of gas water heaters sold during the four months ended April 30 as compared with the corresponding period of 1937 is announced by the Sheffield Gas Company.

Application for a Special Order, under the Gas Undertakings Acts, 1920 to 1934, is intended to be made to the Board of Trade by the Reading Gas Company with the object *inter alia* of authorizing the Company to use certain lands for gas-works purposes.

In Opening a Series of Cookery Demonstrations arranged by Haddington Gas Company, ex-Bailie Mrs. Cameron paid a high tribute to Dr. W. R. Martine, Chairman of the Company, who presided. The Gas Company owed a great deal to the doctor for his able chairmanship.

In a Letter published in the "JOURNAL" for May 4 Mr. J. Jutte, of the Waterless Gasholder Company, Ltd., referred to a Paper on Tar Reconditioning Plant read before the Midland Junior Gas Association on March 3. The Author of that Paper was Mr. D. J. Ward—not Mr. E. T. Pickering as stated in the letter.

The Eleventh and Final Week of the Food and Health Demonstrations, in which the South Metropolitan Gas Company are co-operating with the *Kentish Mercury*, concluded at St. Barnabas Church Hall, Downham Way, last Friday. Every borough in South and South-East London has been visited in turn, and the attendances have aggregated several thousands.

The Simultaneous Reading of Gas and Electricity Meters is the subject of a proposal recently adopted by the Bradford Corporation Finance Accounts Committee. The work will be carried out by inspectors calling at intervals of six weeks. The scheme has been referred to a sub-committee comprising the Chairman and Deputy-Chairman of the Finance Accounts Committee and the Chairman of the Gas and Electricity Committees.

The First Railway Station in Scotland to install Calor gas lighting will be Ratho (Midlothian) on the L.N.E.R. The lamps will be of the ordinary incandescent type, and each lamp will be self-contained and fed by its own container, thus obviating the disadvantages of pipes across railway lines or bridges. Ratho is at present lighted by oil lamps, and if the installation of "bottled" gas proves satisfactory, the L.N.E.R. may extend the system to other country stations.

During National Cooker Fortnight, states the current issue of the *Cardiff Gas Review*, sales of cookers by the Cardiff Gas Light and Coke Company jumped by nearly 50%. During the fortnight the Company inserted a statistical announcement in the Press giving the following interesting facts: There are 68,801 gas cookers installed in Cardiff; other methods of cooking have been tried by 1,300 consumers, who have reverted to gas, and 900 housewives using another method of cooking have installed gas hotplates for speedy grilling and boiling. Every week this year the Company has sold an average of 98 cookers against last year's average of 46.

The Underground Gasification of Coal has been the subject of experiments by the Soviet Union for some time now. Several experimental underground gasification plants were built in the Donetz Basin, in the Moscow coal basin, and in Siberia. In these plants were elaborated the technical processes which made it possible to undertake the production of gas underground on a commercial scale. In 1936 the Underground Gasification Trust commenced the building of commercial plants. The first of these, in Gorlovka, put into operation at the end of 1937, was already supplying gas to boilers of the coke works in February of this year. In the next few years the Trust is planning to build commercial plants on a wide scale. A small plant for the underground gasification of lignite is rapidly going up in the Moscow coal basin, where it is also intended to construct a big commercial plant. The gas produced by the latter will be transmitted to Moscow through a long pipe line. Early in 1939 will be put into operation a plant for the underground gasification of coal at Lisichansk in the Donetz Basin. A number of other big plants is being planned. The gas produced underground is said to be very much cheaper than that produced on the surface.

The Gas Committee's Proposal to invite offers for the erection of a waterless gasholder, to cost £130,000, and to spend £20,000 on new plant for existing works has been approved by the Glasgow Town Council.

An Increase in the price of gas is announced by the Fraserburgh Town Council, who, on May 9, approved a recommendation by the Gas Committee that as from May 16 the price be increased by 2d. per 1,000 cu.ft., making it 4s. 8d. per 1,000 cu.ft.

Copies of the Following British Standard Specification, which was recently issued, may be obtained, price 2s., from the Secretary, The Institution of Gas Engineers, 1, Grosvenor Place, S.W. 1: No. 616-1938. Sampling of Coal Tar and Its Products.

A Cookery Demonstration was given by the Chertsey Gas Consumers' Company, Ltd., to the Chertsey (Afternoon) Townswomen's Guild on May 12 at the Abbey Barn Club, Chertsey. The demonstration, which aroused great interest, was conducted by Miss G. Hiscox, of the Parkinson Stove Company, using a "Renown" cooker.

Members of The Institution of Gas Engineers will be welcome at a Bossom Gift Lecture on Tuesday, May 24, 1938, at 8 p.m., at the Institution of Mechanical Engineers, Storey's Gate, S.W. 1. The Lecture will be given by Professor H. J. Collins, M.C., M.Sc., Chadwick Professor of Engineering, University College, London, on "Engineering Problems of Modern Building Construction."

New Showrooms for the Wandsworth and District Gas Company were opened on Monday in Upper Tooting Road, S.W. 17, to replace smaller premises on the same site. Thoroughly up-to-date in every particular, the new showrooms strike a modern note, and are in keeping with the high standards set by the Wandsworth Company. We hope to describe the premises and the opening ceremony more fully in next week's issue of the "JOURNAL."

"Sands, Clays, and Minerals" in its latest edition fully maintains the standard set by previous issues. In the many articles contained in the current number is to be found a host of information of both general and particular interest. There is a very forceful editorial on Empire Minerals and World Affairs, in the nature of a sequence to the last survey of the position of Empire minerals, which has brought interesting criticisms from various parts of the Empire.

At the First Statutory General Meeting, on May 5, of the (incorporated) British Chemical Plant Manufacturers' Association (which Association has taken over the assets, liabilities, and activities of the original unincorporated British Chemical Plant Manufacturers' Association), Mr. J. W. Wright (Cannon Iron Foundries, Ltd.) was elected Chairman. Among those elected to the Executive Committee were Dr. G. E. Foxwell (Clayton, Son, & Co., Ltd.) and Mr. D. M. Henshaw (W. C. Holmes & Co., Ltd.). Dr. R. Lessing (the Hydronyl Syndicate, Ltd.) was one of the co-opted members.

Forthcoming Engagements

May.

14.—Scottish Eastern Juniors.—Annual General Meeting at Dunfermline. Presidential Address of A. C. Rea.

17.—I.G.E.—Gas Education Executive Committee, 2.30 p.m.

19.—Wales and Mon. Association.—Annual Meeting under Presidency of Mr. J. Stephenson, Aberdare.

19.—Southern Association (Western District).—Commercial Meeting, Rougemont Hotel, Exeter, 2.30 p.m.

19 and 20.—Eastern Counties Association.—Spring Meeting at Boston.

20.—B.G.F.—Meeting of Exhibitions Committee, 2.30 p.m.

21.—Yorkshire Juniors.—Meeting at Matlock. Papers by C. W. Hemmingway, A. P. Jennings, and T. W. Pickthall.

21.—Scottish Juniors.—Joint Visit to Neasden Works of Ascot Gas Water Heaters, Ltd.

25.—Southern Association (Eastern District).—Meeting at Gas Industry House, 2.30 p.m.

26.—Midland Association.—Spring Meeting at Walsall.

31.—June 1, 2, and 3.—I.G.E.—75th Annual General Meeting.

Society of British Gas Industries

Institution Week Golf Meeting

The S.B.G.I. Golfing Circle is holding its Spring Meeting at Hadley Wood Golf Club on Monday, May 30, and cordially invites golfing members of The Institution of Gas Engineers attending the 75th Annual General Meeting to take part in the competitions on that day. The arrangements have kindly been made by the President of the Institution, Mr. H. C. Smith.

The programme will be as follows: During the day—18 holes medal play for the "Thornton Victory Cup" for members of the Society of British Gas Industries, and the "Coronation Plate" for members of the Institution. Afternoon only—13 holes foursomes against bogey for prizes presented by a member of the Circle.

The "Coronation Plate" is a perpetual trophy presented by the Society of British Gas Industries Golfing Circle to The Institution of Gas Engineers, to be competed for annually by members of the Institution at the Spring Meeting of the S.B.G.I. Golfing Circle.

Competitors are requested to start as soon after 9.30 a.m. as possible, and cards for both competitions are returnable by 6 p.m. at the latest. An optional sweepstake will be held in conjunction with each competition.

Members of the Institution wishing to enter are requested to apply before May 28 to the Hon. Secretary and Treasurer of the Circle, Mr. W. R. Edgar, Blenheim Works, Hammersmith, W. 6.

Sampling of Coal Tar and Its Products

Revised Specification

The British Standards Institution has just published a revision of the Specification for the Sampling of Coal Tar and its Products, B.S.616-1938. This Specification which was originally published in 1935 has been completely revised and brought up to date. Special attention has been given to the sampling of pitch and of those tar products, such as phenols and the benzoles, which are marketed in the refined state.

The Specification provides for the representative sampling of viscous and partly solidified liquids as well as liquid and solid products, and includes the sampling of heterogeneous liquids. It is emphasized that sampling should be carried out by an operator skilled in this type of work and that the methods recommended are intended to supplement such experience.

Copies of the Specification can be obtained from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W. 1, price 2s. each, 2s. 2d. post free.

Parkinson & Cowan, Ltd.

Resumption of Ordinary Dividend

The net profits of Parkinson & Cowan, Ltd., rose from £44,641 for 1936 to £60,820 for 1937. Having paid two years' Preference dividend to Sept. 30 last during the year, the Directors propose to resume dividends on the Ordinary shares, after a lapse of six years, with a payment of 3%. They also transfer £13,085 to reserve account, the balance forward being reduced from £39,763 to £20,688. Shares in subsidiaries stand at £1,197,047, and the net indebtedness of those companies at £110,261. A summary of the assets and liabilities of the subsidiaries shows floating asset of £800,852, against sundry creditors of £175,908. Mr. A. J. West has been elected a Director, and shareholders will be asked at the Annual General Meeting on May 27 to confirm this appointment.

Willing's Press Guide*

Since the publication of the last issue of "Willing's Press Guide" there have been many changes in the Press. This, the sixty-fifth annual edition, contains full details of these and presents a revised work of reference in that "easy as ABC" form which is so appreciated by the many users of the Guide. The lay-out adopted in past issues has again been followed with the exception of the sections dealing with Dominion, Colonial, and Foreign newspapers, where extended information is given concerning some of the principal newspapers. References to recent titular changes and amalgamations will acquaint readers with changes during the past year, while other alterations not affecting titles will be noticed in the ABC and other portions of the Guide. A large number of new periodicals which have come into being since the publication of the last issue are recorded, and the whole work maintains the high standard which has been set in the past.

* 65th Annual Issue; published by Willing's Press Service, Ltd., 356 364 Gray's Inn Road, W.C. 1; price, 2s. 6d.

Amalgamation and Grouping

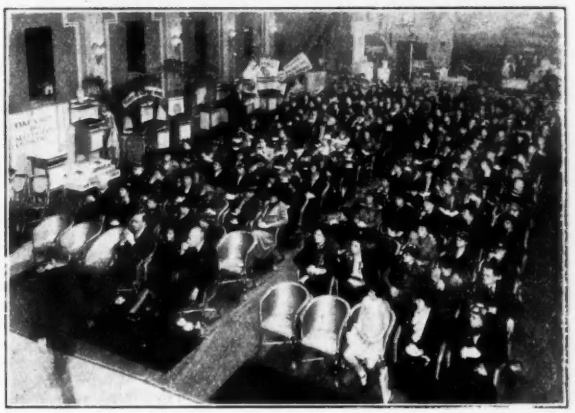
United Kingdom, Elland, and Yeadon.

Close Brothers, Ltd., Secretaries, announce that the United Kingdom Gas Corporation, Ltd., has acquired over 96% of the Ordinary Stock of the Elland-cum-Greetland Gas Company, the transaction being effected entirely by an exchange of Preference Shares of the Corporation for Ordinary Stock of the Gas Company.

Elland-cum-Greetland represents the twenty-second gas undertaking in Yorkshire to be acquired by the United Kingdom Gas Corporation, and increases the total number of Undertakings under the direct control of the Corporation to 47.

We are advised also that the Corporation has made an offer for yet another Yorkshire gas undertaking—the Yeadon and Guiseley Gas Company; this purchase is due to be completed at the end of this month.

Gas Exhibition in Jersey



Our photograph shows the audience at the Plaza Ballroom, Jersey, during one of the Cookery Demonstrations given by Miss R. Gilmour, of Radiation Ltd., by arrangement with Messrs. Fletcher Russell & Co., Ltd., during the week April 25 to 30, 1938. The Exhibition was organized by the Jersey Gas Light Company, and created much local interest, 2,582 adults attending the 14 sessions during the week. A Cake Baking Competition attracted 295 entries, and in addition to cash prizes of £3, £2, and £1, consolation prizes consisting of six gas irons and 10 Radiation timing clocks were awarded. The Gas Exhibition was opened by Mrs. Isabel Duret Aubin, wife of Mr. C. W. Duret Aubin (Attorney General), and in addition to sound film displays, included working models of a coal carbonization plant and refrigerator. The film programme and cooking demonstrations were altered at each session. Mr. R. A. Fuller (Secretary and Accountant to the Jersey Company) acted as compère during the week of the Exhibition.

Coal Gas as Motor Fuel

Under Consideration in Glasgow

In the minutes of meetings of the Glasgow Corporation Gas Committee it is reported that Councillor Lawrence S. Blanche will move at the next meeting "that a special committee be set up to enquire into the possibility of using gas for motor transport, and to consider the advisability of equipping one of the Department's own motor lorries to enable it to run on gas for experimental purposes."

Councillor Blanche stated in an interview on May 10 that, with the increase in taxation, it was obvious, if they could use gas for their transport, it would be a great economy. He knew that at present some motor vehicles, both private and commercial, were running on gas.

If the experiment with the Gas Department was successful, he contended that the principle could be applied to other vehicles used by the Corporation. It might be that the Corporation would set up gas supply stations in various parts of the city so that private motor cars built for the use of gas might readily get their power supply.

Progress in Fish-Frying Equipment

A visit to the exhibition of fish-frying equipment now being held by the Gas Light and Coke Company at Watson House.

A few years ago when the Industrial Section of the Gas Light and Coke Company was at Goswell Road, a number of standard fish frying ranges were loaned by various manufacturers. Tests carried out on these ranges showed that their efficiencies varied from 36·5% down to as low as 28·1%. To-day there are still a number of what might be termed obsolete gas ranges in use in which the efficiency is not much higher, but with a modern gas range an efficiency of between 50% and 60% may be expected.

These significant figures were given by Mr. W. Dieterichs, Industrial Workshops Manager, of the Gas Light and Coke Company, when welcoming the London and Home Counties Fish Friers' Association to an exhibition of gas fish frying equipment now running at Watson House. With regard to the future, he added that he was confident that by the end of the present year it would be possible to obtain an efficiency of 75%. There were, of course, practical difficulties to be overcome, but he did not think that they were insurmountable. Mr. Dieterichs mentioned this point regarding efficiency because he had often had conversation with friers and range makers regarding the price of gas, and he assured his listeners that the Gas Light and Coke Company, and, in fact, most undertakings in the country, would gladly reduce the price of gas if that were at all possible. Under present conditions they could not do so, but what they could do was to make the range more efficient, and this was one of the many problems they were tackling at Watson House at the present time. But he offered a timely word of warning to friers who might be contemplating the purchase of a new range to make certain that when figures were quoted they represented a comparison between modern ranges and not between modern ranges using one fuel in comparison with obsolete ranges using another fuel. He was afraid that was often done.

The exhibition opened on May 9, and members of the trade are free to inspect the exhibits for a fortnight from that date. At the conclusion of the visit, members of the Association were entertained at tea on the kind invitation of the Governor and Directors of the Company. The thanks of the Association were voiced by their Chairman, Mr. L. Halperin.

Description of the Exhibits.

Our representative inspected the very comprehensive array of exhibits, which was typical of latest practice in fish frying. The Acme Engineering Company, Ltd., Stocks Hill, Holbeck, Leeds, were showing their "Moderne" range. The economy of this range is best noted by reference to a letter received by the firm from a user who stated that since installing it he had saved 26,000 cu.ft. of gas in a month, reducing his gas bill by practically 50%.

The "Radiant" range was exhibited by Messrs. Faulkner & Co., Hollinwood, Lancs., who claim that this type represents a considerable advance in gas range construction, especially as regards economy of operation and efficiency of performance. This type of range incorporates the "Radiant Heat" gas burner, and the makers state that a novel feature are the air-heated fish and chip boxes. The heat for this purpose is transferred to the air from the products of combustion, and, of course, no products can possibly enter the boxes. Provision is made for the drainage of all oil from the boxes back to the pans.

On the stand of Messrs. Frank Ford, Sovereign Street Works, Lister Lane, Halifax, was their three-pan service range in stainless steel and black Vitrolite, incorporating special chip containers fitted with roll covers and Davis burners. The ventilation of this appliance is carried out mechanically. Another exhibit was a potato peeler. There are two definite advantages possessed by "Ford" ranges which claim the attention of the frier. The first of these is the excellent drainage system which returns all fat to the pans, thus eliminating wastage, and the second is the hot air system, which ensures that all containers keep their contents hot and crisp, thus giving rapid service just when required. All the firm's ranges are lined with a 3½ in. course of firebricks, thereby lengthening the life of the appliance.

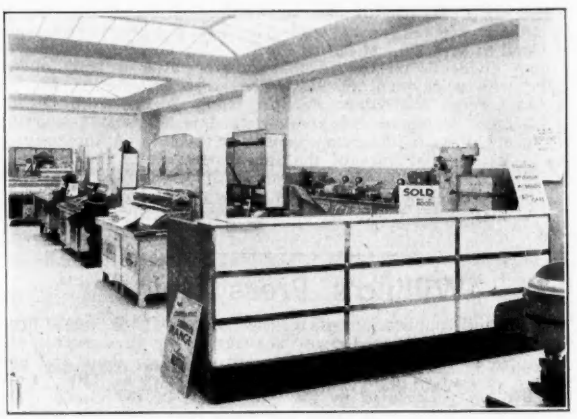
A complete counter set for tea and coffee making was exhibited by Messrs. Jackson Boilers, Ltd., Vulcan Works, Shafton Lane, Leeds. Messrs. Henry Nutalls, Castle Works, Bridge Street, Rochdale, showed a 12 ft. two-pan counter range in stainless steel with a cream opaline front and white marble top. The appliance is mechanically ventilated.

The "Radi-Heat" burner was featured on the stand of Messrs. Preston & Thomas, Ltd., 1, Minny Street, Cardiff. This system is claimed greatly to increase the efficiency of the range by reason of greater heat transfer to the oil in the pans. The flames from the burners play on refractory cones, the tops of which are in contact with the bottom of the pan. Not only does this arrangement assist heat transfer by radiation, but the latent heat stored in the refractory material prevents the oil temperature from falling when demands are very high. In addition this assists recovery between cookings. The "Silvrex" art glass range was also seen. This is finished in stainless steel, with beige and green opalite and is fitted with the "Radi-Heat" burner and mechanical ventilation. There was also shown a potato peeler.

Messrs. E. W. Procter, Triton Works, Leeds Road, Huddersfield, showed a two-pan range in stainless steel and vitreous enamel and black and white tile. This model is fitted with the "Davis" burner, which does not project appreciably from the front of the range, and offers combined control of gas and air, rendering the burner practically foolproof; one burner is fitted to each pan of any standard size. Also shown was one of the firm's potato chippers.

For Hotels and Restaurants.

The "Wardour" range for such establishments as hotels and restaurants was exhibited by Radiation Ltd. This range is constructed as follows: The body is of wrought iron and mild steel with one, two, or three pans of welded steel plate, provided with



emptying taps. The top is of heavy cast-iron, so shaped that all fats drain back to the pans. It is fitted with special duplex burners under each pan, with a heat screen between the outer casing and the combustion chamber, and vent pipes which are carried behind the hood and turned into the canopy. The finish is in mottled porcelain enamel, with polished aluminium hood and draining rack, or in black stove enamel with polished mouldings and galvanized hood. The panels at the front and sides in both cases are finished in white enamel.

Messrs. John Rouse (Oldham), Ltd., Enterprise Works, Booth Street, Oldham, showed a two-pan range in green and cream opaline, with stainless steel covers, and lighted fittings.

A two-pan War Office pattern range in grey vitreous enamel, complete with hood, six different types of tea and coffee urns, a counter set, and pie warmers were among the comprehensive exhibit of catering equipment shown by Messrs. Sumerling & Co., Ltd., 63-66, Bunhill Row, E.C. 1.

Messrs. Teuten & Co., Ltd., 221, Upper Thames Street, E.C. 4, exhibited one two-pan range finished in stainless steel and black and white opalite. A feature of this range is that it is fitted with "Duoflam" burners.

In addition to the ranges there was a varied display of refrigerators, large-scale cookers, tea and coffee equipment, and instantaneous and storage type water heaters. An interesting feature was a thermostatically-controlled aquarium for the breeding of tropical fish—a diverting adjunct to attract custom.

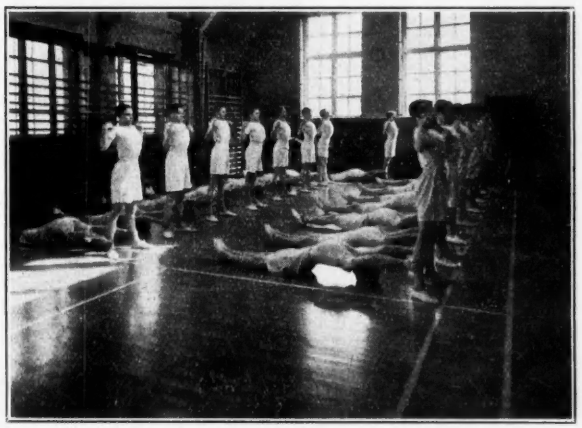
Science Museum, South Kensington

In connexion with the notice which we published in the "JOURNAL" for May 4 of the addition to the Science Museum, South Kensington, of a Gas Controller Exhibit, we now understand this exhibit will contain one of the first automatic gas controllers ever used for public street lighting. These controllers were patented in 1897 by the late Mr. John Gunning (of the British, Foreign, and Colonial Automatic Light Controlling Company, Ltd.), who was the pioneer of automatic street lighting, it being some 7 years later when another controller was placed on the market. The exhibit will therefore contain one of the earliest automatic controllers—namely, the "Gunfire"—which was put into use as far back as 1897. The gas controller devised and patented by Dr. Thurgar is well known in the Industry as being primarily for automatic lighting and not for automatic street lighting.

ATHLETIC AND SOCIAL

Fitter Fitters

"Fitness Wins" is now a slogan familiar to millions, thanks to the propaganda of those responsible for the National Physical Fitness Campaign, the results of whose excellent work is already apparent in all parts of the country, and it is far from putting too fine a point on matters to say that the slogan might well refer to success in the competitive field of commercial enterprise. As Juvenal had it centuries ago, *Mens sana in corpore sano*, a healthy body has a profound influence on the ability of the mind readily to assimilate knowledge. No one doubts the greater capacity for work possessed by those who are physically fit, but there are many even in these enlightened days who fail to connect physical and mental fitness. The two go hand in hand.



[By Courtesy of the Gas Light and Coke Company.

A Session at Westminster Technical Institute.

Among those who realize the mental as well as the physical benefits of the National Physical Fitness Campaign are the Gas Light and Coke Company, whose apprentices are profiting from a recently inaugurated scheme. As is well known in our Industry, this Company has in operation a very comprehensive six-year course for the training of apprentices, and since October of last year, those in the first three years of their training, to the number of 350, are putting in one hour a week under expert physical training instructors at the Westminster Technical Institute and the School of Engineering at Poplar. In addition to this, every day there is a "break" of about ten minutes for breathing exercises and recreation. The ages of the apprentices affected by the scheme range from fourteen to eighteen, and at a recent session we were privileged to attend we were greatly impressed by the high standard attained. It reflects the highest credit on instructor and apprentice alike. The results of physical culture cannot be measured in any concrete manner, but the enthusiasm displayed by the pupils themselves is a very good pointer to the success of the scheme, and this must be very gratifying to the Company, whose interest has extended even to the provision of gymnastic costume for each apprentice. The apprentices will also enjoy the benefits of athletic competition, for it is intended to hold a sports meeting on June 2 at Raynes Park, when Poplar apprentices, representing those employed in the eastern area of the Company, will meet Westminster, representing the western area. In conclusion, it is interesting to note that ample accommodation, where shower baths may be had after the physical "jerks" are over, is available at both Poplar and Westminster. Beyond doubt the Company will benefit from this far-seeing and public-spirited policy.

George Wilson's "Send-off" to J. L. Giles.

An informal supper and social evening was arranged on Wednesday, May 11, by Mr. J. H. Wilson and his Co-Directors of Messrs. George Wilson Gas Meters, Ltd., Foleshill Road, Coventry, in the works canteen as a "send-off" to Mr. J. L. Giles, the Coventry Rugby football captain, who sails for South Africa to-morrow as a member of the British touring side. Mr. Giles is a member of the Staff of Messrs. George Wilson Gas Meters, Ltd. Mr. A. H. G. Purchas, who is also a member of the touring side, was invited as a guest of honour.

The civic and sporting life of Coventry was fully represented, some 120 guests attending, including the Mayor (Alderman Miss Alice Arnold), the Mayoress (Alderman Mrs. Hughes), Mr. F. Smith, Town Clerk, Mr. F. R. Loveitt, President of the Coventry Rugby Football Club, and a large and representative number of Rugby players.

Mr. J. H. Wilson, who presided, proposed the toast of "The Visitors," and Mr. W. D. Wilson that of Messrs. Giles and Purchas, whom he described as "Ambassadors of the Club and of the City." Mr. Giles, in reply, thanked Mr. J. H. Wilson and his Co-Directors for the opportunity given to him of going to South Africa, which had necessitated them giving him five months' leave. Mr. Purchas also responded. On behalf of the staff and employees of the firm, the Mayor presented Mr. Giles with a fountain pen and conveyed to him and to Mr. Purchas the good wishes of the City upon their South African tour.

An evening of vigorous enjoyment was spent as befits an occasion upon which a number of Rugby footballers forgather, and a hearty vote of thanks was proposed by Mr. H. T. Suddens to Mr. J. H. Wilson, whose interest in the civic life of Coventry and in their famous football teams was well known. Mr. Derek Wilson was also heartily thanked for the arrangements made.

Preston Social Club.

The excellent teamwork of the Preston Gas Company's' Social Club was referred to by the Chairman (Mr. S. McDonald) at the annual meeting of the club held on May 5. He said it was nearly impossible nowadays to separate the interests of the Company from those of the Club; the need at the moment was for a sports ground and pavilion. Mr. J. B. James mentioned the interest which the Directors had shown in the Club. Those present included Mr. W. Davies (Deputy-Chairman of the Company), and Mr. S. Tagg (Director). The Chairman (Mr. C. Eastwood) was congratulated on his recent appointment as High Sheriff of Lancashire.

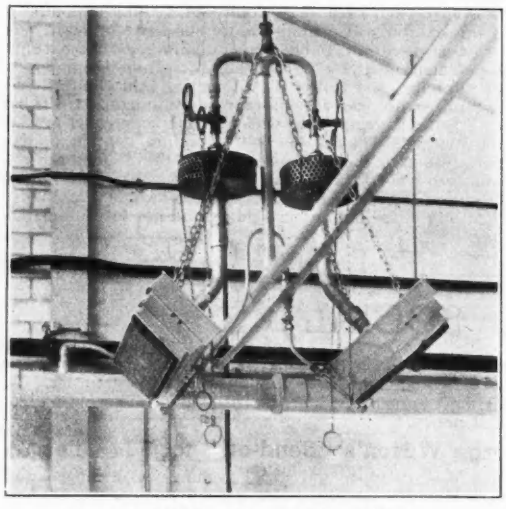
Presentation to South Shields Employees.

Chiming clocks were presented to six veteran workmen who have retired from the service of the Newcastle-upon-Tyne and Gateshead Gas Company at South Shields and Jarrow at the Company's South Shields depôt on May 7. The presentations were made by Mr. Robert Gray, who was recently appointed Chief Engineer, in the presence of officials and workmen, including Mr. J. R. Porter (Manager of the South Shields works). Recipients of the gifts were: Mr. W. J. Clarke, Mr. J. G. Dixon, Mr. J. Maddison, Mr. G. Hay, Mr. Thomas Hay, Mr. E. J. Jackson, Mr. J. Goodall, and Mr. W. H. Davey. The eight men had combined ages of 564 years and their total service was 250 years. This gave an average age of 70½ years and an average service of 31 years for each man.

Mr. J. G. Dixon thanked Mr. Gray and subscribers to the presentations on behalf of the recipients, and a vote of thanks to Mr. Gray was moved by Mr. George Holt.

An All-Gas Printing Works - - -

Interesting Installation by South Suburban Gas Company at Tonbridge



Method of Fixing Pair of Radiant Heaters.

Seven hundred and more individual gas units in a single works may or may not constitute a record, but the mention of such a figure immediately arouses interest. One hears from time to time of the many uses to which gas can be put in a modern printing works, though it is only infrequently that we have the opportunity of referring to an establishment in which gas is used for main lighting, heating, hot water supply, and some power requirements. Such are the premises of Messrs. Brown, Knight & Truscott, at Tonbridge, through whose courtesy and the kindness of the South Suburban Gas Company we were enabled the other day to inspect the very comprehensive gas installation which has lately been undertaken in connexion with a scheme of extension and modernization of their printing works.

To give an idea of the scope of this firm, it may be mentioned that some 450 people are employed, and the works embrace the very latest methods in the printing industry, including up-to-date Monotype machines and elaborate plant for lithographic work and colour printing. In addition, much of their work involves highly technical and tabular matter, the setting up of which calls for the best possible operating conditions for the compositors, not the least important feature of which is good illumination—free from glare and free from shadow. Only in such circumstances and with the addition of comfortable atmospheric conditions can the most efficient work be obtained.

It should be stated in the first instance that the South Suburban Gas Company were not opening up "virgin" ground; but none the less credit is due to them for that. A fair amount of gas apparatus, together with a coke boiler, is employed for the lighting and heating of the original buildings. When the new extensions were under consideration, therefore, and various systems of lighting and heating came under review, the Gas Company submitted a scheme for an up-to-date lighting and heating system, together with suggestions for modernizing the existing plant on similar lines. The Architects (Messrs. Fuller Hall & Foulsham, of High Holborn, W.C. 1) were convinced of the suitability of the scheme, with the result that the Company were enabled to proceed in conjunction with the building work, thereby facilitating the installation.

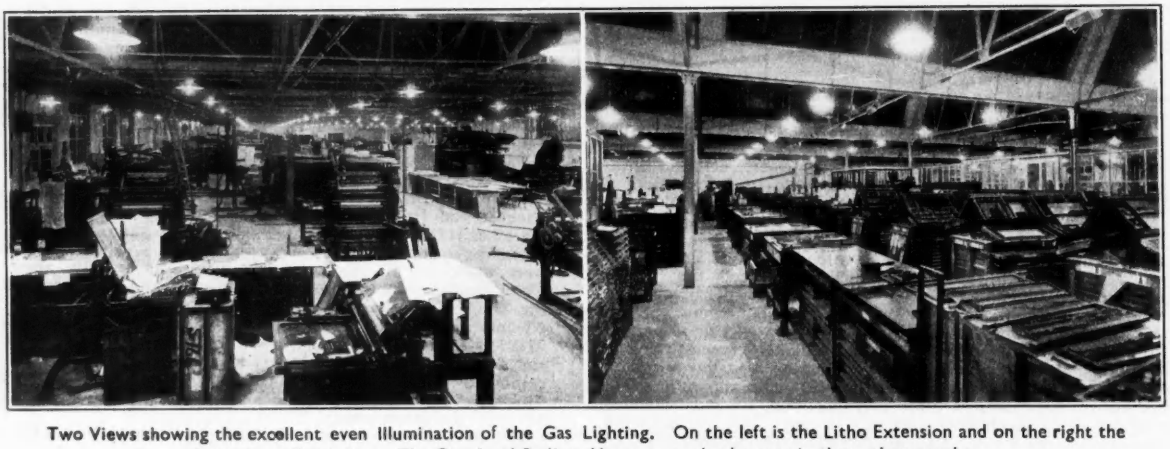
It was decided to retain the coke-fired heating plant for the time being so far as the old portion of the premises was concerned, while for the extensions an entirely new system was adopted, in keeping with the latest principles of workshop lighting and heating.

For the machine rooms, despatch department, and loading docks high-pressure Keith lighting units were employed, along with radiant surface-combustion panels (by Messrs. Radiant Heating, Ltd.) for heating. The availability of high-pressure gas for the lighting rendered this form of heating ideal, dispensing with the need for air under pressure which is the alternative method of operating these heaters. At the same time, it simplified the fitting work, as the supply of sufficient quantities of low-pressure gas together with high-pressure air for so large a number of heaters would have considerably complicated the pipe-running. The two systems are, moreover, essentially complementary—the lighting having the effect of materially assisting the heating of the shops. Another very important point is that the use of gas provides the necessary degree of humidity in the air which is so vital a factor in dealing with the paper in printing works.

As will be seen from the accompanying photographs, both heaters and lamps are mounted at about the same level—namely, 11 ft. 6 in., and the general illumination at working level is of the order of 12 foot-candles. There are in all over a hundred radiant heaters and some 500 lamps of 100 c.p. to 500 c.p. for general lighting, while stairways, cloak-rooms, and emergency lighting is operated by low-pressure supply. The lamps are equipped with anti-vibration fittings to avoid any possibility of damage in the shops where heavy printing presses or overhead power drives are employed. The lamps are fitted with individual control so that they may be brought into operation as and when required, thereby saving unnecessary lighting in sections where no operators may for the time being be working.

Saving in Floor Space.

One of the principal advantages, apart from their efficiency, of overhead radiant heaters is that no valuable floor space is occupied, while the heat can, of course, actually be directed to points where it is required. The radiant gas heaters are arranged transversely across the shops—each line being controlled by a separate air thermostat on the wall, as well as being under manual control. It is thus possible automatically to control the temperature of the whole or any particular section of the shops and to turn off completely such sections as are not required. Similarly, if any individual operator finds the temperature becoming warmer than he feels comfortable he can simply turn off the particular



Two Views showing the excellent even Illumination of the Gas Lighting. On the left is the Litho Extension and on the right the Letterpress Extension. The Overhead Radiant Heaters can also be seen in these photographs.

unit which is directing its heat upon him, without upsetting the general temperature conditions. Reflectors are fitted in some cases above the units to throw the heat downwards. In this connexion it is of interest to note that all the shops are equipped with automatic fire sprinklers, and these have been tested at 2 ft. 6 in. above the radiant heaters with no indication of the heat putting them into operation accidentally. It is notable how quietly the heaters light up, and although there is a certain amount of noise which must be inherently associated with units of this kind it is by no means sufficient to disturb the operators.

In the photographic section, where the use of radiant heaters is impracticable by reason of the type of work carried on there, special air heating plant is employed. Air is drawn by fan from atmosphere through a 3 ft. 6 in. by 7 ft. filter and passed through a "Perfecta" gas heater of 7½ therms per hour consumption. This heater is of the twin-chamber type with luminous low-pressure burners, thermostatically controlled and fitted with a safety pilot which prevents the main gas supply being turned on unless the pilot is alight and the fan running. The warmed and filtered air is then blown through ducting which is taken down to grilled outlets, operated by hand, about 2 ft. 6 in. from ground level. The temperature in this section is usually maintained at about 75° F., as against the 65° in the other departments.

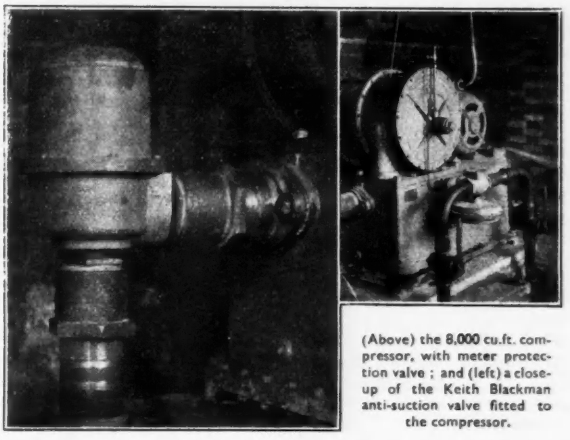
Other Uses for Gas.

Among the other uses to which gas is put in these works may be mentioned two 60 h.p. gas engines which drive a compressor for the old high-pressure lighting system and also generate a certain amount of electricity for power purposes. In the binding department there are a 24-ring gas range and a large number of individual rings, all on low-pressure supply, for glue-pot heating. In the foundry the type metal is melted in gas furnaces, while a gas-fired case oven, with a 4 ft. drilled burner, is used for drying lithographic plates.

Gas is also adopted for water heating for the lavatories and other purposes. There are two Potterton "Emperor" storage sets of 23 gallons capacity and one of 14 gallons, in addition to seven 5-gallon and two 2½-gallon "Newlyn" gas storage heaters. Some of the offices are also fitted with gas fires.

The gas supply is brought into the works by means of a 6-in. steel main. The supply is at present measured in a 6,000 cu.ft. per hour meter which—when the extensions are completed—it is proposed would be replaced by a 20,000 cu.ft. per hour B.M. wet meter, the foundations for which are already laid in the meter house. Adjoining the meter is the 8,000 cu.ft. per hour compressor which supplies the works at 3 lb. per sq.in. pressure. This compressor—which will be duplicated under the final scheme—is fitted with a by-pass in case of breakdown, together with a special anti-fluctuator valve, which prevents the pulsations being transmitted to the low-pressure supply, which would, of course, upset the operation of the appliances. A safety valve is also fitted to safeguard the meter from suction by the compressor in the event of the main supply being cut off for any reason. The high-pressure supply thereafter passes to the shops through a 6-in. service branching to two 4-in. and the low-pressure supply through 4-in. service branching to two 3-in. There are in all some two miles of gas piping throughout the premises.

Mention should be made of the particularly neat pipe-running which is everywhere in evidence; the alignment of the lamps and other overhead equipment is a masterpiece of fitting work, while so far as results are concerned our own impressions coincide with those already expressed by both management and operators—namely, that work is undoubtedly carried out under the most pleasant conditions both as regards lighting and heating. The temperature throughout the building strikes one as being "just right" and not only is the general illumination bright and cheerful, with no shadows or "black spots," but, what is a most unusual feature in printing works of any kind, the lighting is such that no need has been found for individual units for the compositors. The main lighting is sufficient for all purposes, which is a very noteworthy achievement.



(Above) the 8,000 cu.ft. compressor, with meter protection valve; and (left) a close-up of the Keith Blackman anti-suction valve fitted to the compressor.

The success of this installation is in no small measure due to the collaboration and valuable assistance given by Mr. E. H. Ford, the Works Manager.

The printing works of Messrs. Brown, Knight, and Truscott, Ltd., are certainly a model of their kind and provide an outstanding example—to the credit of the South Suburban Gas Company—of a valuable load that can be obtained for gas by energetic sales effort and intelligent planning to meet the needs of this highly specialized trade.

Gas to the Rescue in Hawick Typhoid Outbreak

The following is an extract from a letter received recently by the B.C.G.A. from the Hawick Gas Company:

"Since the first case of typhoid fever was reported two weeks ago the fever has spread at an alarming rate. About 60 patients have now been admitted to the local hospitals and many more are under observation.

"At the Isolation Hospital, Hawick, accommodation for extra staff had to be provided at very short notice. Gas fires, radiators, and 'Ascot' water heaters were supplied by the local Gas Company a few hours after receiving notice. An additional 'Ascot' water heater was also supplied to the Sanatorium whose patients have been removed to a Sanatorium near Edinburgh and whose accommodation is now taxed with typhoid patients.

"This afternoon tradesmen were hurriedly summoned to Drumlanrig Home. The plans are complete for turning this Institution into an Isolation Hospital for 70 patients, and doctors and nurses are to come from Edinburgh. Baths and other sanitary ware are to be taken from a local housing scheme in course of erection, and if the local Medical Officer of Health decides to-night at 6.30 the work is expected to be complete and the Institution ready for patients within 48 hours.

"The old folks at present staying in Drumlanrig Home are to be removed to neighbouring towns.

"Here again Mr. Therm has been called to the rescue to provide hot water and work will be commenced immediately to run the necessary gas pipes and fit 'Equator' and 'Ascot' water heaters.

"The gas output has broken all records for this time of year, due no doubt to the public boiling all water and milk and using gas for this purpose."

Canadian Gas Association

Annual Convention

The thirty-first annual convention of the Canadian Gas Association will be held at the Royal York Hotel, Toronto, on June 9 and 10, under the Presidency of Mr. Edward J. Tucker, General Manager and Secretary of the Consumers' Gas Company of Toronto.

Gas Activities at Empire Exhibition

Markham Colliery Disaster Fund

In aid of the Markham Colliery Disaster Fund the staff of the Gas Pavilion at the Empire Exhibition are making a series of efforts which are meeting with commendable success. At nine o'clock each evening light refreshment is being supplied to visitors free of charge, a collection box being there to receive any voluntary donations. On May 13 ex-Treasurer P. J. Dollan (Glasgow) appeared at the Pavilion and spoke in appreciation of the scheme.

On the same day Ambrose, the well-known dance band leader, appeared at the Pavilion with Miss Evelyn Dall, both signing numerous autographs, the collection box again being displayed. On May 14 signed photos of Ben Lyon and Bebe Daniels, both well-known to film-goers, were also available for those prepared to make a contribution. The staff has arranged to hold a dance in aid of the Fund on June 3 in the Locarno Ballroom, Sauchiehall Street, Glasgow. Tickets are priced at 3s. and can be had at the Gas Pavilion in the Exhibition. Ambrose on May 13 generously doubled the amount of the subscriptions received from those who were supplied with autographs.

The National Gas Council of Great Britain and Ireland

The Twentieth Annual General Meeting of the National Gas Council was held at Gas Industry House, 1, Grosvenor Place, S.W. 1, on Tuesday, May 10—Sir DAVID MILNE-WATSON, Bart., LL.D., D.L. (President of the Council), in the chair.

Prior to the Annual Meeting the usual informal luncheon was held at the May Fair Hotel, at which Sir David Milne-Watson also presided. There were no toasts other than that of "The King."

THE ANNUAL MEETING.

The Minutes of the Nineteenth Annual General Meeting, as circulated to members, were confirmed and signed, after which the list of Members of the Central Executive Board appointed and nominated respectively by the District Executive Boards and Associated Bodies was announced by the SECRETARY (Mr. W. J. Smith) as follows:

Eastern District.—B. Clarke (Stamford), R. G. Shadbolt (Boston), W. W. Townsend (Colchester), and J. H. Troughton (Newmarket).

Irish District.—Capt. Geo. Anderson (Queenstown), W. J. Grey, A.C.A. (Alliance and Dublin), J. McNicholl (Cork), and J. D. Smith, M.Inst.C.E., J.P. (Belfast).

London District.—R. W. Foot (The Gas Light and Coke Company), F. H. Jones, M.Inst.C.E., M.I.Mech.E., J.P. (Wandsworth), W. J. Sandeman, J.P. (Croydon), and Harold C. Smith, M.Inst.C.E. (Tottenham).

Manchester District.—J. H. Cadman (Manchester), G. S. Frith (Runcorn), E. Parry (Oldham), and S. Tagg, M.Inst.C.E., J.P. (Preston).

Midland District.—C. M. D. Belton, A.M.Inst.C.E., A.M.I.Mech.E., F.C.I.S. (Shrewsbury), R. J. Milbourne, J.P., A.M.Inst.C.E, F.C.S. (Wellington, Salop, &c.), A. W. Smith, F.C.I.S. (Birmingham), and C. H. Webb, M.Sc., A.M.Inst.C.E. (Stourbridge).

Northern District.—C. Rhodes Armitage (British Gas Light, Hull), J. E. Blundell, M.Inst.C.E. (Carlisle), H. Lees, A.M.Inst.C.E., J.P. (Hexham), and T. P. Ridley, F.C.I.S. (Newcastle-on-Tyne).

Scottish District.—G. Braidwood (Coatbridge), T. W. Harper (Ayr), J. Jamieson (Edinburgh), and H. G. Ritchie, A.M.I.Mech.E. (Falkirk).

Southern District.—T. Carmichael, M.Inst.C.E., M.I.Mech.E. (Portsmouth and Gosport), Wm. Cash, F.C.A., J.P. (Bournemouth), A. Valon, M.Inst.C.E. (Bexhill-on-Sea), and S. E. Whitehead, B.Sc., M.I.Mech.E. (Southampton).

South Wales District.—Wm. Clark Jackson, M.I.Mech.E., M.I.Gas E. (Neath), W. H. Johns, M.I.Mech.E. (Swansea), J. Prosser Jones (Rhymney and Aber), and H. D. Madden, M.Inst.C.E. (Cardiff).

South-Western District.—W. E. Dean (Exmouth), S. E. Halliwell, F.C.I.S. (Bristol), S. J. Ingram (Truro), and Col. R. L. Norrington, C.M.G. (Plymouth).

Yorkshire (W.R.) District.—H. E. Bloor, B.Sc., B.Eng. (York), E. H. Hudson (Normanton), A. L. Jennings (Spenborough), and C. S. Shapley, M.I.Mech.E., M.Inst.Gas E. (Leeds).

Representing the British Commercial Gas Association.—R. Halkett, Councillor G. H. Kitson, Sir David Milne-Watson, Bart., LL.D., D.L., and A. M. Paddon, M.Inst.C.E.

Representing the Gas Companies' Protection Association.—R. J. Auckland, F.C.I.S., F. G. Brewer, D. H. Helps, A.M.Inst.C.E., and Wm. Phillips.

Representing The Institution of Gas Engineers.—G. Dixon, B.Eng., M.Inst.C.E., M.Inst.Gas E., S. Lacey, B.Sc., M.Inst.C.E., R. Robertson, and J. Terrace, M.Inst.C.E.

Co-opted Members.—Col. W. M. Carr, O.B.E., T.D., M.Inst.Gas E. (United Kingdom Gas Corporation, Ltd.), and E. V. Evans (South Metropolitan Gas Company).

THE PRESIDENT'S SPEECH.

The PRESIDENT, proposing that the Annual Report and Audited Statement of Accounts for the twelve months ended March 31, 1938, be approved and adopted, said:

Gentlemen,

It falls to me as your President once again to move the adoption of the Annual Report and Statement of Accounts, and I do so with added pleasure because for the first time since the Council was formed we meet in premises which, though we share them with the other National Bodies, may be called our own.

It is also gratifying that the strength of the Council numerically as well as in other ways is greater than it has ever been. It now represents 95% of the gas made in the British Isles, and in your name I welcome to our midst all those Undertakings who have joined us during the past year. To me, personally, as you will readily understand, it is a special satisfaction to have the co-operation of the other big London Companies in the work of the Council. We hope eventually to be 100% strong, and I venture to suggest to the 5% who are still content to dwell in outer darkness that they should consider the advantages which they would secure for themselves by associating themselves with the Council and the other National Bodies. For the Council is not only strong numerically but it is, I venture to think, to-day in a better position than ever before to assist its members and to safeguard their rights and interests.

The Report before you, which, as it has been circulated, you will not desire me to read, gives no more than a summary of the more important matters with which we have had to deal during the year, but even so it shows clearly that our work steadily increases in volume, importance, and variety. It also reflects the increasing complexity of commercial and industrial relations, necessitating close collaboration in some cases and organized opposition in others. Legislation tends more and more to impinge upon our particular sphere, and eternal vigilance is the price we have to pay for maintaining that measure of freedom which we have been able to secure for ourselves.

Nor is this complexity confined to our relations with the outside world. As a Council we are part of a more comprehensive body—namely, the British Gas Federation—and though each unit in that body has its own sphere, there is, by reason of the ultimate aim which associates them all, a great measure of interdependence between them. There is, too, some degree of overlapping, and though I believe that such overlapping cannot in the nature of things be entirely eliminated, it can, I think, be reduced. A Committee has therefore been set up to consider the whole question, and I merely mention the matter now to let you know that it has not been lost sight of. As an Industry we have good reason to congratulate ourselves upon the efficiency of the National Bodies which we have created to represent our various interests, but however good our organization may be, it may still be capable of improvement, and that in broad outline is the question which the Committee to which I have referred is engaged in examining. While reviewing the whole subject, the Committee is, as you will well expect, applying itself in particular to the question of ensuring that in future one

subscription is payable to cover the work of the three National Bodies.

Coal.

Turning now to the Report itself, the first matter to which I wish to refer is the coal position. As the Report points out, this question has again engaged a great part of the energies of the Council, and while in conjunction with the Conjoint Conference of Public Utility Associations we have been able to secure changes useful from our point of view, both in the Bill which hangs over our heads and in the machinery by which it is operated, we will still find ourselves faced with a virtually uncontrolled monopoly in the sale of coal.

Everyone wants to see the coal industry in this country sufficiently prosperous to be able to pay fair wages to those employed in it, and to give a fair return to those who have put their capital into collieries which have been and still are being efficiently managed, but that desirable aim could surely be attained without prejudicing most unfairly the interests of consumers, and particularly large consumers like ourselves.

It seems to me that the Government, instead of endeavouring to render workable the Coal Mines Act of 1930, which failed to effect its purpose, would have been much better advised to have scrapped that Measure altogether and to have introduced a Bill on more rational lines.

We have contended from the beginning that the first essential to a more prosperous coal industry is the concentration of production in the low-cost and efficient mines. Every colliery capable of increasing production should be given the fullest opportunity to expand, thereby diminishing costs and improving efficiency. I have no hesitation in saying that the quota system is from an economic point of view fundamentally unsound. It merely bolsters up—at the expense of the consuming public—pits which should be closed down.

Another major objection is that the Bill prolongs these unregulated coal selling monopolies for another five years. We are grateful for the assurances—reproduced in the Report—which have been obtained from the Central Council of Coalowners. We are grateful for the changes which will render the Committees of Investigation less ineffective as safeguards for the consumer, and for the proposed creation of an Appeal Tribunal. These all represent substantial improvements from the consumers' point of view, and we owe a great debt of gratitude to all those who have taken part in the fight for their rights. Had that fight not been carried on with relentless energy, or had there been any relaxation of the pressure steadily exercised upon the Government and the coalowners, these concessions would not have been wrung—and wrung is the word which best describes the process—from the protagonists of the Bill.

Valuable as they are, however, these concessions only become operative when grounds of complaint have actually arisen, when unfair treatment has been suffered, and when unreasonable prices have been charged. The generally accepted principle that it is much more satisfactory to prevent an abuse than to seek to remedy its unfortunate consequences has thus been ignored. Moreover, the procedure involved in seeking a remedy will necessarily be slow and costly. It is for these reasons that we have from the beginning urged upon the Government, unfortunately without success, the importance of regulating the monopoly itself so that it would be normally impossible for abuses to be perpetrated. In all other monopolies or quasi monopolies sanctioned by Parliament that has been the system adopted, and I cannot myself believe that this departure from it with which we are now faced will stand the test of time.

In any event I am quite sure that unless the coalowners exercise with extreme moderation the extraordinary powers which they now enjoy, trouble will arise and great injury will be inflicted on the community.

Smoke Abatement.

The effect of the Coal Bill upon the cause of Smoke Abatement cannot as yet be determined with exactitude. It is, however, encouraging to note the growing increase in interest among Members of Parliament and the community in general in the question of the abatement or abolition of the smoke nuisance. At long last it is becoming generally recognized that the pollution of the atmosphere by smoke is most detrimental to health and the national economy, and should be discouraged in every way possible.

Our Report points out that the National Smoke Abatement Society has provided a focus for the activities of all organizations and individuals interested in the question, and I hope every undertaker will give generous support to this Society, which, as you probably know, has recently moved its Headquarters from Manchester to London, and which would, if adequately supported, undoubtedly be capable of performing very valuable work.

[The President then dealt with the question of Air Raid Precautions.]

Hire Purchase Bill.

Another matter in regard to which there have been developments since the Report was prepared is the Hire Purchase Bill. As the result of the outcry from many quarters which followed the drastic changes made in the measure when it was in Committee, the promoters—no doubt fearful of losing the Bill altogether—became more accommodating.

I am glad to be able to report, therefore, that while we have not been able to secure complete exemption for Public Utility Undertakings, we have been able to secure the insertion of amendments which go far to meet our objections. In particular, the hirer will in any event have to pay our fixing and installation charges in full before he can take advantage of the provisions of the Bill. The Measure is a useful one, redressing as it does many abuses; at the same time, it will, I think, be innocuous as far as the Gas Industry is concerned.

Joint Select Committee on Gas Pipes.

When addressing you last year I made reference to the report which had just been issued by the Joint Select Committee on Gas Prices, pointing out that from our point of view it was, on the whole, extremely satisfactory.

In order to give effect to the recommendations of the Committee, legislation is, of course, necessary, and the attitude which we have taken up in regard to such legislation is that it should either incorporate *all* the recommendations (with one exception where modification is necessary) or not be introduced at all.

Importance was attached to the right to impose a minimum charge on the lines indicated in the Committee's Report, and to obtain such a right we were prepared to accept those recommendations in the Report which involve a certain degree of restriction in other directions. But legislation without that right, or with the addition of restrictions other than those mentioned in the report would obviously be highly detrimental, and we shall therefore continue—I feel sure with your approval—to maintain the attitude I have indicated.

Industrial Gas Development Centres.

Turning now for a moment to questions which do not arise out of or involve legislation, I wish to draw special attention to the paragraph in the Report dealing with Industrial Gas Development Centres. That these Centres are now firmly established, that they serve a large number of members, and that they are doing most useful work is a source of great satisfaction to those who from the first have seen the importance of developing industrial and commercial gas supply.

Not only is each Centre serving a most useful purpose in its own area, but the steps which have been taken to make the results of the work of each Centre available to the members of the other Centres have brought about a much wider dissemination of the knowledge and experience gained by each.

It has been the practice for individual Centres to distribute among its members periodical reports upon the work in progress and the results achieved. A decision has recently been taken to incorporate in a single report information regarding work in progress in the various Centres. This report, which will be edited by the Industrial Gas Information Bureau and circulated among the subscribing members of all Industrial Centres, will still further assist in extending the usefulness of their work.

The rearmament programme has focused attention upon the manifold advantage of gas-fired furnaces, and even firms engaged upon the lighter class of munition production are rapidly coming to regard gas as essential if the highest standard of production is to be achieved.

Among the peace-time applications of gas-firing we find a

steadily increasing load in bread-baking, a field which I think holds great possibilities of development.

Those of our members who have not so far subscribed to the Industrial Development Centres would do well to consider whether they can afford to dispense with these invaluable aids to the development of their business. There are, I know, some who feel that by reason of what they believe to be the absence of potential consumers in their area of supply there is no need for them to participate, but experience has shown that there is potential demand for gas for commercial purposes in the most unexpected quarters, and the information distributed by the Industrial Gas Information Bureau will almost certainly show how such demands can best be met.

Supply of Gas to the War Department.

While speaking upon this subject of the large-scale use of gas, I should like to refer to the decision of the War Department, of which I am sure you will have been pleased to learn from the Technical Press, to install gas-fired steam boilers for the heating, hot water, and cooking requirements of the large new Barracks which are in course of erection at Shrivenham in the area of the Swindon United Gas Company. I have reason to believe that the War Department are willing to pursue this policy in the case of new and reconstructed Army Depôts and Barracks throughout the country wherever they can rely upon obtaining gas on favourable terms.

It is to be hoped that the example set by the War Department in this respect will be followed by the other Fighting Services.

There is no doubt that the successful application of gas in the industrial and commercial field has added greatly to its prestige. The present time presents many opportunities which I trust our members will seize of enhancing that prestige.

There are many other matters in the Report I might comment upon, but I do not think any useful purpose would be served by so doing. You will observe that in the great majority of cases negotiations are still in progress and the particular questions at issue have not been decided. I refer in particular to such subjects as Income-Tax and Rating, in which we are all of us most closely concerned. I only wish to assure you that every endeavour will be made to protect the interests of our members in every way possible.

Personally, I think that the record of work accomplished during the year has been most satisfactory, and I sincerely hope that you are all of the same opinion.

This record, however, would not have been maintained if we had not had the loyal co-operation of our members throughout the country, and I endorse very heartily the gratitude expressed in the Report to the District Executive Boards, District Management Committees, and to individual members for their help. I wish, too, to offer our special thanks to the Women's Gas Council. The Report of their Third Annual Meeting was received too late to be included in our Report, but it makes most satisfactory reading. Already the Council has forty-eight branches with over 9,000 members, and during the past year it has formed a training Committee whose objects are the standardization of the qualifications needed for demonstrators in the Gas Industry, and the further extension of instruction and training for this work.

In addition, the Council has co-operated with over fifty national organizations, many of them most influential bodies, during the year. I think you will agree that it would be difficult to overrate the beneficial influence and the value of their work.

This concludes my review. As in previous years, many problems of one kind or another have presented themselves, and if these have not always been solved in exactly the way we would have desired, some solution has generally been found. In that way we have been able to make steady progress and maintain the traditions of which as an Industry we are rightly proud. Unlike many other industries, including our two most notable rivals, it is not our practice when difficulties arise to go "cap in hand" to the Government and seek for any extraneous assistance. We are content to stand on our own feet, and I might add that by so doing we have earned praise in many influential quarters. We shall continue, I hope, to display—and to display with advantage—that well-known characteristic of the British race—sturdy independence. In that way, and in that way alone, we shall, in my judgment, best serve the interests of our Industry and of the great community we serve.

Mr. WILLIAM CASH, F.C.A., J.P., seconded the resolution for the adoption of the Report and Accounts, and commented upon various items in the latter.

The Accounts, he observed, spoke for themselves, and they got the results of the finances from page 81, which dealt with the figures in total; and they would see that the income of the combined bodies was substantially more than a year ago. The President had told them, in part, how that was accounted for, while the expenditure was also less than a year ago by a substantial figure. He would just refer to two or three items. The proportion of rent and house expenses showed a considerable increase, which arose from the fact that they had now been in the present building for the whole of the past year, and there was some amount which was really contributable to the previous year, when the rent had not been finally settled. Then there was a decrease in expenditure in respect of legal and Parliamentary expenses; they would remember that a year ago there had been a heavy outlay in respect to the Gas Prices Inquiry and the York Gas Bill. The decrease under the head of furniture and equipment was due to the fact that when they moved into their new quarters there had been exceptional expenditure in this respect.

The most satisfactory item was an increase of some £17,000 in the amount of members' contributions. There were further undertakings now contributing at the full rate of 10s., which amounted to an increase of £1,200. Subscriptions were based on make of gas, and many contributing undertakings had made more gas. Then there was the satisfactory fact that some large London Gas Companies, hitherto outside the Council, had joined during the past year. Representation on the Council had gone up to nearly 95% of the total make of gas of the Industry, and there were twenty more undertakings contributing on the full joint basis of 10s. per million than twelve months ago. The corresponding figures for the previous year were set out in the accounts. The value of their furniture and effects had not been taken into account, but were worth some £2,000.

Major G. H. KITSON (Chairman, City of Leeds Gas Department), in supporting the proposition, observed that the Report and Balance Sheet told of a busy year for both the Council and the Officers, and it was particularly gratifying to know that only 5% of the total make of gas remained unrepresented on the Council. He could not help feeling that that 5% must find themselves in a rather delicate position when they realized that all the valuable work done by the Council also benefited them; and when they took account of all the work done in that building during a difficult year, not least of which was in connexion with the Coal Mines Bill, they might feel that the time had come to join the Council. The members present could tactfully put it to those outside that they would welcome their presence at this time—not because the Council could not do without them, but because it was better for the Industry as a whole that membership should be 100%. Though he had only been connected with the National Gas Council for a comparatively short time, he could say that it had been a most exacting year for the Council and their officials. He had the greatest pleasure in supporting the resolution for the adoption of the Report and Accounts.

The resolution was then put to the meeting and carried unanimously.

Re-election of the President.

Alderman JOHN E. DAW, J.P. (Chairman, Exeter Gas Light and Coke Company), proposed the re-election of Sir David Milne-Watson as President of the Council for the ensuing year. Knowing as they did the important position he occupied in the Industry and the enormous calls made upon his time, one wondered that he found time to undertake these additional duties. The obligation was on their side if he would again occupy the position which he had so efficiently occupied for so many years. The fact that they were endeavouring to effect a unification of the organizations within the Industry under one head would, he hoped, be another inducement to Sir David to continue in his capacity of President of the Council.

Councillor T. WILSON (Glasgow Corporation Gas Department) seconded the resolution, which was cordially accepted.

Sir DAVID MILNE-WATSON thanked them very heartily for the extremely kind way in which they had accepted the proposition. He had occupied that position now for a long time, and they had signalized the fact last November in a most delightful manner by presenting him with his portrait and some silver and by a presentation to his wife. The reason that the portrait was not at the moment on the wall of that room was that it was in the Royal Academy, which was another honour he greatly appreciated.

Other Appointments.

On the proposition of Mr. A. M. PADDON, M.Inst.C.E. (President of the B.C.G.A.), seconded by Councillor A. E. HEWITT

(Chairman, City of Stoke-on-Trent Gas Department), the following were re-elected for the ensuing year:

Hon. Treasurer.—Alderman Sir William Kay, J.P.
Trustees.—Alderman J. E. Daw, J.P.
Alderman J. H. Lloyd, M.A., J.P.
Hon. Secretary.—Sir Francis Goodenough, C.B.E.
Auditor.—Mr. A. Morland, F.C.A.

Votes of Thanks.

The PRESIDENT thereafter moved a vote of thanks to the Chairmen and Secretaries of the District Executive Boards. The strength of the National Gas Council, he said, lay in their regional strength. The fact that headquarters were fully conversant with all that went on in the Districts was the principal reason for their strong position. They owed the Chairmen and Secretaries of the District Boards an enormous debt of gratitude for all the work they so kindly undertook.

The vote of thanks was seconded by Mr. W. J. SANDEMAN (General Manager, Croydon Gas Company) and carried unanimously.

Mr. H. D. MADDEN, M.Inst.C.E. (Engineer and Manager, Cardiff Gas Light and Coke Company), acknowledged the kind expression of thanks for the work undertaken by the Chairmen and Secretaries of the District Executive Boards. It was, he said, a pleasure to do this work, which, being of a territorial nature, was very useful. The previous day the South Wales District Board had held a meeting with the coal owners, which had resulted in a happier frame of mind, and good results would accrue. Mr. Madden concluded by paying tribute to the great help they received from the officers at Headquarters—Col. Ogilvie, Mr. Fottrell, and Mr. Smith. It would not be possible to do the work which they did without their support.

Mr. G. DIXON, M.Inst.C.E. (Engineer and Manager, Nottingham Corporation Gas Department), also returned thanks, and expressed appreciation of the value of the first-hand information they were always able to obtain from Headquarters. He would, however, like to see more use made of the District Executive Boards, whose personnel were not sufficiently *au fait* with the work of the National Gas Council as a whole. There were many directions in which they could strengthen the District Boards.

The Meeting terminated with a cordial expression of thanks to the Joint Managers, Secretary, and Staff, on the proposition of the PRESIDENT. Col. SHOLTO OGILVIE (Joint Manager of the Council) briefly responded.

THE ANNUAL MEETING

OF THE

Society of British Gas Industries

The Annual Meeting of the Society of British Gas Industries was held at the May Fair Hotel, London, W. 1, on Wednesday, May 11, 1938, the PRESIDENT, Sir Harold Hartley, C.B.E., M.C., M.A., D.Sc., F.R.S., presiding. It was followed the same evening by the Annual Dinner of the Society, which was honoured by the presence of a number of distinguished guests.

The minutes of the previous Annual General Meeting and Autumn Meeting, having been taken as read, were duly confirmed and signed.

REPORT OF THE COUNCIL FOR 1937-38.

The Council begs to present to the Members its Thirty-third Annual Report on the work of the Society.

British Gas Federation.—The year under review has witnessed the completion of the third year's work of the British Gas Federation, under the Presidency of the Earl of Dudley, a Past-President of the Society.

The Federation held a most successful Banquet in November, and the attendance of a number of distinguished guests holding important positions in the Government and in Industry was in itself a striking tribute to the value of the activities of the Federation. During the evening his portrait was presented on behalf of his friends to Sir David Milne-Watson, a Past-President of the Society, in appreciation of his many and inestimable services to the Industry.

The Council of the Federation, under the Chairmanship of Sir David Milne-Watson, has examined and discussed a number of questions of general concern to the Industry during the year, several of which are dealt with in detail later in this Report. Two matters in which the Society has co-operated with advantage both to its members and to the Industry might be selected for mention at this stage. As the result of the work of a Committee of the Federation there were issued in August by The Institution of Gas Engineers Regulations Governing the Installation of Gas Service Pipes, Gas Supply Pipes, and Gas Appliances. The need for such regulations had become increasingly evident in recent years, and utilizing channels for co-operation which the Federation provides they were prepared with a celerity which might well be the envy of any other Industry in the country. The preparation of these regulations drew pointed attention to the need for the revision of the Instructions for Fixing Geysers, issued in 1930, and work to this end is already well advanced. In citing these two examples of tasks undertaken by the Federation for the general good of the Industry the Council wishes to place on record that in these and many other matters not only are the interests of the Society's members synonymous with those of the whole Industry, but in addition the Society, through those who are good enough to represent it, is able to contribute information based on knowledge and experience which is being increasingly recognized as indispensable to the proper consideration of such matters.

Exhibitions Committee, British Gas Federation.—The Industry and in particular the Society's members annually spend large sums of money on exhibitions, and it is being realized more and more that expenditure of this nature must bear some reasonable relation to the benefits, either direct or in prestige value, which are derived from participation. The Exhibitions Committee, on which the Society is strongly represented, has been entrusted by the Council of the Federation with the task of reviewing all applications for support of exhibitions, and its activities are proving of increasing value. During the past year there have been notable cases where support of exhibitions has been entirely withdrawn or where the extent of the Industry's participation has been restricted to something approximately commensurate with the obligations and capacity of the Industry. While there are instances where the Society would favour curtailment or withdrawal of support of certain other exhibitions, the case has not been pressed to a point where harmonious co-operation in the work of the Exhibitions Committee would be jeopardized, and the reaction has been an increasing recognition of the fact that credit is due to the Society's members where support is given in loyalty to the Industry rather than in expectation of anything more than a negligible direct financial return on the expenditure involved.

The Society has supported co-operative Industrial Gas Exhibits at the Birmingham Section of the British Industries Fair and at the Engineering and Marine Exhibition, Olympia, during the past year. Support is also being given on a co-operative basis to a Gas Pavilion in the grounds and to an Industrial Gas Exhibit in the Palace of Engineering at the forthcoming Empire Exhibition, Glasgow.

The exhibits staged by the Society's members at the Ideal Home Exhibition afforded striking evidence, if that were needed, that modern gas service is regarded in sober fact as veritably part and parcel of the home of to-day.

National Gas Gallery, South Kensington Science Museum.—The Science Museum at South Kensington is the national centre for the display of the world's greatest scientific inventions and industrial processes, and a million and a quarter people from all parts of the country visit the Museum every year. Many branches of Engineering and Public Utilities have elaborate displays, but the Gas Industry is virtually unrepresented. The British Gas Federation, having sought and obtained the opportunity of staging in a good position a permanent collection representing the Gas Industry, has issued an appeal to raise the sum of money required for the purpose, and the Council whole-heartedly commends this appeal to the sympathetic consideration of the Society's members. Representatives of the Society are being given every opportunity to take an active part in ensuring that the fund shall be administered and the exhibits arranged to the best possible advantage.

British Industries Fair, Birmingham Section, 1938—Gas Industries Section.—The arrangements for the exhibit were made under the guidance of the Gas Industries Section Committee, on which each section of the Society was represented, and over which the Chairman of the Council of the Society presided. A compact block in a central space was again available, and a fully representative range of apparatus, appliances, and accessories was exhibited by the Society's members. Every endeavour was made to establish the identity of the Section by a distinctive and relatively uniform appearance; certain avenues were widened with the result that roof stanchions which previously came in the centre of some stands were all situated in the gangways and small stands backing on the north wall were increased in depth. Improvements were made in general lighting and in ventilation. It is gratifying to report once again that the Section was with every justification the subject of favourable comment on all sides.

The Society, with the assistance of certain members of the Heavy Sections, shared with the British Commercial Gas Association in the cost of the Central Information Bureau and Industrial Gas Exhibit. The site of the Industrial Gas Exhibit was increased in area by comparison with that occupied in the previous year, and the general design and stand fitting were considerably improved in appearance. The Stand itself was fully up to the high standard which these exhibits have latterly attained, and the Society's members concerned co-operated in providing many of the individual exhibits, in suggesting various minor improvements to make the exhibit as a whole more effective, and very materially in securing wider publicity for it.

The British Gas Federation held a Joint Gas Conference during the second week of the Fair, under the Chairmanship of Lord Dudley, the President. An official welcome was extended to members by the Lord Mayor of Birmingham, and an Address was given by Sir Philip Dawson, entitled "Smoke Prevention." There was also a display of gas publicity films. An official Gas Industry Luncheon and a Luncheon by invitation of the Birmingham Chamber of Commerce took place on successive days. Mr. H. C. Smith presided over the Committee responsible for the arrangements for the Joint Gas Conference.

The Society is very much indebted to the Chairman and General Manager of the Birmingham Corporation Gas Department for their co-operation and support, and to Mr. W. L. S. Spinks for his invaluable assistance as Honorary Secretary.

British Standards Institution.—The Gas Industry Section has been placed in a more satisfactory financial position since contributions from the national bodies are now on a basis comparable with those of organizations in other industries, and in addition many individual Gas Undertakings and Manufacturers are contributing members of the Section. During the year a Gas Advisory Committee has considered all the work in progress with a view to Standards being restricted to essentials and being prepared in as simple a form as possible.

The Society is maintaining its close co-operation with the Institution and is represented on the following Committees, Sub-Committees, and Panels:

Gas Industry Committee.
Gas Industry Advisory Panel.
Gas Industry Terms Committee.
Gas Industry Terms Editing Committee.
Solid Fuel Industry Committee.
Illumination Industry Committee.
Temperature Measurement Gas Flow and Pressure Measurement (Technical Committee).
Flue Pipes and Fittings (Technical Committee).
Lighting Fittings (Technical Committee).
Street Lighting (Technical Committee).
Fans (Technical Committee).
Steel Strip (Technical Committee).
Water Fittings (Technical Committee).
Furnaces and Ovens (Technical Committee).
Gas Meter Unions (Technical Committee).
Areas and Heights of Chimneys (Technical Committee).
Connexions for Portable Gas Appliances Sub-Committee.
Neck Dimensions Sub-Committee.
Diffusing Materials Sub-Committee.
Tar and Pitch Sub-Committee.
Hydro-Extractors Committee.

Members are kept informed by the Society of Draft Specifications in which they are likely to be interested when these Drafts are circulated for technical comment and criticism.

World Power Conference.—The Society continues its financial support of the British National Committee, World Power Conference, on which it has an official representative. Two representatives of member firms are collaborating in the compilation of a Paper to be presented at a Sectional Meeting to be held in Vienna, Aug. 25-Sept. 2, entitled "Public Lighting by Gas," which is being sponsored by The Institution of Gas Engineers.

Women's Gas Council.—The Women's Gas Council records steady progress in its endeavour to make the British housewife more gas-minded. Its local branches comprise some 7,600 members, and more branches are in the course of formation. All branches report progress in membership during the second year, which shows that interest is being maintained. With the aid of Summer Schools and Demonstrators' Circles the knowledge of those already engaged in the Industry is being kept up to date, and Courses in Gas Demonstration are ensuring that new entrants are properly qualified for their work. The Society has two representatives on the Executive Committee and one representative on the Training Committee of the Women's Gas Council.

British Refractories Research Association.—The British Refractories Research Association has re-constituted its Council on which manufacturers of refractories were already amply represented. The Society has accepted an invitation to appoint two representatives from among users to serve on the new Council.

National Register of Industrial Art Designers.—The Council has decided to give official support to the National Register and has appointed two representatives to serve on the Board as Honorary Advisors. They will deal with the adjudication of applications for registration from designers of gas apparatus and appliances. The Register was established a year ago by the Board of Trade and is financed by the Treasury, its purpose being to maintain and improve the standard of design in British Industry.

Department of Coal Gas and Fuel Industries, Leeds University.—The Society has made a further donation in reply to an appeal for funds to improve the Library of the University on the Gas Engineering side. The Society continues to be represented on the Livesey Professorship Advisory Committee.

Junior Gas Associations—Award of Silver Medals.—The Council, as in previous years, has awarded Silver Medals to each of the Junior Gas Associations for the best Paper adjudged to have been presented during the year by their members at a General Meeting. The Medals are presented at the Society's Annual Meeting and the results announced in the Technical Press.

City and Guilds of London Institute.—The Council has again awarded prizes to the first and second candidates in the Minor Examination in Gas-Works Practice and Gas Supply Practice and the Final Examination in Gas Fitting at the City and Guilds of London Institute. It is gratifying to know that the Council's action is greatly appreciated.

French Import Quotas.—The issue of Quota Certificates in respect of certain gas apparatus for importation into France is still being conducted by the Society. While restrictions on a number of articles, including burners, have been removed, gas fires, cookers, &c., are still subject to quota restrictions.

Gas Lighting.—The Council has gratefully accepted an invitation from the Joint Lighting Committee of The Institution of Gas Engineers to strengthen materially its representation on that Committee, and it is pleasing to report that the optimism of the makers of gas public lighting units is meeting with increasing response from the Industry as a whole. The vigour with which the case for gas was presented at the Annual Conference of the Association of Public Lighting Engineers at Folkestone, and the excellence of the practical demonstrations in support of that case by the Society's members, have focused the attention of the Industry in no uncertain manner on the importance of the public lighting load. Moreover, that this effort was admirably timed is beyond question, for within two months the attention of Parliament and Local Authorities throughout the country was directed to Street Lighting by the issue of the Final Report of the Departmental Committee of the Ministry of Transport. The Joint Lighting Committee has taken stock of the Industry's competitive position, recommendations have been made to improve that position, and a close working contact between all those within the Industry who are directly concerned with this problem has been established on sound lines. During the year members of the Society have materially assisted the position by presenting Papers on appropriate occasions dealing with public lighting, and the Society has had the pleasure of assisting Herr Beckmann, Chairman of the Lighting Committee of the German Gas Association, in conducting a personal investigation into the progress which has been made in this country of recent date. The Council wishes in particular to express its appreciation of the guidance and assistance which have been given during the year by Mr. S. Lacey, Chairman of the Joint Lighting Committee, and Mr. C. I. Winstone, President of the Association of Public Lighting Engineers.

The Council has accepted an invitation to be represented on a Committee which has been entrusted with the task of preparing evidence on Factory Lighting by gas for submission to a Departmental Committee of the Home Office.

The Society's representatives are taking an active share in the work of the National Illumination Committee of Great Britain, the B.S.I. Illumination Industry Committee, and the B.S.I. Street Lighting Committee.

Conditions of Contract.—The Council is keeping in close contact with the work of the Contracts Committee of the Federation of British Industries. Members are invited to advise the Council of any cases of forms of contract which contain no arbitration clause or are in other ways unfair to contractors and manufacturers, so that the question of co-operative action can be considered if individual effort is unsuccessful.

Parliamentary Agents.—The Society's Parliamentary Agents con-

tinue to watch the interests of members, and several matters have been dealt with by them during the year at the Council's instigation.

Superannuation Scheme.—The Council has decided to institute a Staff Superannuation Scheme, as similar as possible to those already in force for the other national organizations in the Industry. The necessary additions to the Society's Rules will be submitted to the Annual Meeting, and the Council is confident that it would be the wish of members that such a Scheme should be instituted.

Premises.—The Society's lease on its premises at 56, Victoria Street, expired during the year. The Council, after investigating possible alternative accommodation, primarily with rent, general convenience and proximity to Gas Industry House in mind, decided that the Society's interests would be best served by entering into a new agreement for the further lease of the present premises. This was effected without increase in rental, and in consideration of renewal the landlords re-decorated the premises throughout at their own expense.

New Sections.—At their last Annual Meeting members confirmed the Council's recommendation to create two new Sections, covering respectively Water Heaters and Scientific Instruments, and the step has proved to have been fully justified. At the Autumn Meeting members ratified a further recommendation that a new Section should be created to provide for the Builders of Coke Ovens. Many matters which the Gas and Coking Industries have in common are tending to bring them closer together, and the formation of this section gives appropriate expression to the position on the manufacturing and contracting side. The Section can already claim 100% membership of the firms established in this country as Builders of Coke Ovens.

Special Fund.—The Council wishes to thank members for their continued support of the Special Fund, to which there has been a number of new subscribers during the year. The income derived from Membership Subscriptions is only adequate to maintain the Staff, and facilities necessary for the efficient working of the Society, and the Council has to rely upon adequate support of the Special Fund to meet the obligations which its position as the body representative of the contractors and manufacturers entails. It is essential that the Society should be able to play an active part in matters which are of common concern to the whole Industry, and the financial commitments involved have to be met from the Special Fund.

Membership.—The Council is particularly pleased to report a further increase in membership, thirteen firms having joined the Society during the period under review.

General.—The Society is very much indebted to the Marquess of Londonderry for the able Presidential Address he gave at the last Annual Meeting. At the Autumn Meeting the Chairman of the Council, Mr. R. J. Rogers, presented a Paper entitled "Co-operation and Service in the Gas Industry," which included a valuable chart showing the national organizations in the Industry grouped under the ægis of the British Gas Federation, and aroused much interested comment.

In the previous year many of the Society's members supplied the Council, through a firm of Chartered Accountants, with statistical information covering their total estimated annual expenditure in the corporate activities of the Industry. A total in excess of £570,000 was returned by 110 members. If figures were the deciding factor in assessing the value of the services which the Society's members render to the Industry this return would in itself be virtually conclusive. The work of the past year and the years that lie behind it confirm, however, that impressive as these figures are, the effort, experience, and initiative which have found scope in the enterprise of individual members have been the deciding factor in placing at the disposal of the Gas Industry an asset of steadily increasing value. It has been the object of the Council during the past year to supplement in every way and as effectively as possible the enterprise of members, primarily by drawing upon it for the progressive development of the corporate activities with which the Society is associated. Notable progress has been made in a number of directions, to which this Report bears testimony, but the Council would only be presenting one side of the picture if it were not to take this opportunity of emphasizing once again that the channels for co-operation were provided and the spirit of goodwill to operate along them was inspired by the formation of the British Gas Federation, on which the five member bodies have equal voice and equal representation. The Council is anxious to co-operate through the Federation in every direction open to it, in the firm conviction that the closer association between supplier and purchaser is not only good business but provides an essentially sound basis on which to develop any industry. In the case of a great Utility the Federation surely but anticipates the legitimate demand of the public the Industry serves. Calls for financial support are implicit in co-operation of this nature, but with them unfailingly has come recognition of the fact that commensurate representation should accompany such support. This recognition increases the Council's assurance in pursuing its policy, and the calls on the time and services of members of the Council, and on those of the commercial and technical experts on the Staffs of member firms, though steadily increasing, have been met gladly.

Signs have not been lacking during the year that the Society's members are showing increasing recognition of the value to them and to the Industry of the work which the Society is doing, and the Council hopes that this Report on the year's activities will help to crystallize that recognition in the cause of development and progress.

On behalf of the Council,
R. J. ROGERS,
Chairman.

March 31, 1938.

Mr. R. J. ROGERS submitted the Annual Report of the Council for the year 1937-38. The latter, he said, had been circulated, and there was no need for him to make any further comment upon it. His year of office as Chairman of the Council had enabled him fully to appreciate the value of the work which was being done in the interests of their members. Much useful work was being carried on by the various sections in safeguarding and developing the interests of the Society, and for the time devoted to this Committee work the Chairmen of the Sections deserved their warmest thanks. In some Sections the need for calling members together at frequent intervals did not arise, but the members in such Sections, Mr. Rogers thought, fully realized that should circumstances arise which demanded their joint consideration, the machinery was available in the Society to assist them in any matters concerning their interests.

The Report showed the result of their combined efforts during the year, but inevitably it gave scant credit to all those who had so loyally co-operated with him during his year of office by giving both their time and their services to the Society's affairs. To each of them he would like to express his sincere thanks for the valuable help and support they had rendered to him as Chairman of the Council. The Society was indeed fortunate in possessing such an energetic and efficient Manager and Secretary as Mr. Burt. Mr. Rogers paid his tribute and thanks to him for the valuable assistance he had rendered to him during his year of office. Mr. Burt was a tower of strength to the Society, and during the few years he had been with them had earned their sincere appreciation by the courteous and efficient manner in which he carried out all his duties. He was sure they would also like him to express their thanks to Mr. Burt's staff for their loyal services during the year.

Mr. Rogers had much pleasure in moving the adoption of the Report. This was seconded by Col. O. B. F. PLANCK and carried unanimously.

The adoption of the Accounts for the past year was moved by Mr. F. J. GOULD, seconded by Mr. C. G. LANGFORD, and unanimously carried.

Alteration of Rules.

The following alteration of Rules was agreed on the proposition of Mr. R. J. ROGERS, seconded by Col. O. B. F. PLANCK:

To add to Rule II. the following paragraph:

(*q*) To establish and support or aid in the establishment and support of Associations, Institutions, Funds, Trusts and Conveniences calculated to benefit employees or ex-employees of the Council or the dependants or connexions of such persons and to grant pensions and allowances and to make payments towards insurances and to subscribe or guarantee money for charitable or benevolent objects or for any Institution or for any public, general or useful object.

To add to Rule VI. the following words:

18. Builders of Coke Ovens.

To add to Rule XI. the following words:

No person who shall have been nominated for service on the Council as an Officer of the Society, as an Elective Member, or as a candidate for the Office of Chairman of any Section shall canvass for votes or otherwise ask or attempt to induce any corporate member to vote for his election to such office. If the Council shall by Resolution declare that it is satisfied that any Corporate Member has been so canvassed, either by a candidate in person or

by any person, body or organization on his behalf, and with his knowledge or concurrence, the person on whose behalf such vote shall have been sought shall thereupon be disqualified from election to the office for which he shall have been nominated, or, if he shall have been elected to such office, shall thereupon vacate office.

To add to Rule XXII. the following words:

The Council may grant pensions or allowances to or make arrangements by way of insurance or otherwise for the superannuation of any Officer or servant of the Council.

The SECRETARY then read the following list of those who have been elected to serve on the Council of the Society as representatives of the various Sections:

Mr. J. L. Butler	Section	I.
Mr. John Drake	,,	II.
Mr. G. W. Allott	,,	III.
Mr. Leonard Hartley	,,	IV.
Dr. E. W. Smith	,,	V.
Mr. Cyril G. Davis	,,	VI.
Col. C. J. Falk	,,	VII.
Mr. R. P. Chester	,,	VIII.
Mr. J. Fallon	,,	IX.
Mr. T. Allen	,,	X.
Mr. F. H. Wilkinson	,,	XI.
Mr. W. Beswick	,,	XII.
Alderman G. Clark	,,	XIII.
Mr. S. A. Scrivener	,,	XIV.
Mr. D. Macartney-Filgate	,,	XV.
Mr. T. F. C. Potterton	,,	XVI.
Mr. W. G. Ardley	,,	XVII.
Mr. R. B. Potter	,,	XVIII.

Dr. E. W. SMITH moved the election of Col. O. B. F. Planck as Chairman, and Mr. E. West as Vice-Chairman, of the Council for the ensuing year. In doing so he said that he was deputizing for his colleague, Mr. F. B. Richards, and there were no members in the Society whom Mr. Richards would have proposed with greater pleasure than these two gentlemen. Col. Planck had been with them on the Council for some years, and the Council were impressed with the fact that he would make an excellent Chairman. He had not an easy task before him, for the activities of the Society were increasing; but they felt that they would have in Col. Planck someone who would ably fulfil their requirements. Dr. Smith was also pleased to propose Mr. West as Vice-Chairman of the Council. Although their two firms were the keenest business competitors, they were the greatest of friends, and he knew it would have given Mr. Richards very much pleasure to propose Mr. West's election, which he now was pleased to do.

Mr. H. M. THORNTON, in seconding the resolution, said he was certain that in Col. Planck they had a very able successor to their present and past Chairmen, and he was sure he would be a credit to the Society and to himself and that the Society would have advanced a step farther when the time came for him to leave the Chair. They all knew Mr. West so well that there was no need for him to say more than to welcome him as Vice-Chairman.

The resolution was cordially accepted, and, in acknowledgment, Col. PLANCK thanked all concerned very sincerely. He accepted the position with great diffidence, particularly as he felt it difficult to follow such an illustrious line of past Chairmen, culminating in Mr. R. J. Rogers. By comparison he himself had so little experience in the Industry; but he assured them that what he lacked in ability and experience he would endeavour to make up by keenness and application and by keeping the interests of the Society very much before him during his year of office.

On the proposition of Alderman G. CLARK, seconded by Mr. T. F. C. POTTERTON, the following Officers and elective members were appointed:

Hon. Treasurer.—F. J. Gould
Hon. Secretary.—H. M. Thornton
Elective Members.—R. J. Rogers and C. G. Langford

while the following elective members were re-elected—namely, D. M. Henshaw, E. W. Smith, and F. B. Richards.

The Society's Auditors (Messrs. Cash, Stone, & Co.) were reappointed on the proposition of Mr. J. L. BUTLER, seconded by Col. C. J. FALK.

Thanks to the Council.

Mr. FRANK WEST moved a hearty vote of thanks to the Council and Officers for their arduous work during the past year. When they perused the work of the Council they would realize that the objects of the Society were being carried out in a very efficient manner. They were all working enthusiastically together for the benefit of the Society. In passing, he mentioned that he had heard that the Gas Exhibit was one of the best things in the Empire Exhibition at Glasgow. It was also satisfactory that the Council had introduced new Sections and members into the Society, while they were all very pleased to see the way in which the Chairman and Council were working together for the good of all, and bringing about closer co-operation with other bodies within the Industry.

Mr. B. B. WALLER seconded the vote of thanks, which was heartily accorded.

The S.B.G.I. Silver Medals.

The PRESIDENT thereafter presented the Society's Silver Medals to the authors of what had been adjudged the best Papers read before the various Junior Gas Associations during the past year. The full list of winners was published in the "JOURNAL" for April 20 last (page 163).

Presidential Address.

Sir HAROLD HARTLEY then gave his Presidential Address, which was published in last week's issue of the "JOURNAL."

Sir FREDERICK WEST proposed that the best thanks of the meeting be accorded to Sir Harold Hartley for his extremely interesting and able address. They should be particularly grateful that Sir Harold, in the midst of his many duties and his work on scientific problems, had found time to prepare such an interesting and instructive address. It had been conceived in a mind which combined the knowledge and experience of a scientist with conversancy, as a Director, with the largest gas undertaking in the world, and with administration of one of the largest undertakings in the railway world. His survey indicated that they were prepared to grapple with the problems of the future, and what he had said was encouraging and stimulating to them. He had referred to the progress of the Gas Industry during the first century of its existence, during which period it was self-effacing and modest; and perhaps Sir Harold had been a little lenient to them in that respect. Although they could claim a considerable measure of progress in the Industry in the latter part of the last century, yet they were conscious also of weaknesses which indicated a certain amount of self-satisfaction and complacency. But whatever criticism could be levelled at the Industry during its first century, they would all agree with their President that to-day it could take credit for having instituted organizations and a policy for meeting present-day demands. He reminded them of their dependency one upon the other, and they would all agree that the S.B.G.I. in its thirty-two years of existence had provided an organization which had pooled the resources of manufacturers and contractors from the point of view of making a contribution towards the real and definite progress of the Industry. The Report submitted that day of the activities of the Society during the past year indicated a number of important problems with which they were dealing—not least of which was the research they were undertaking to improve their various products. They would be willing to co-operate with any others who were endeavouring to secure greater co-ordination in the Industry from the aspect of research and render their researches more effective.

Reference had been made by the President to the new purchasing power of the nation arising out of the re-distribution of wealth and to the fact that the Gas Industry had had a good share of this increased purchasing power. He, Sir Frederick, was under the impression, however, that while they could not deny this, they had not had their fair share in regard, particularly, to housing development. There were housing developments in many parts of the country where the municipal authority dictated to the tenants what form of lighting and heating they were to adopt. The chairman of one gas undertaking had put it to him very forcibly that, where the municipality dictated that the tenants must use electricity, it created a certain amount of industrial unrest in that the tenants could not easily meet the cost. The President's Address would stimulate the members of the Society to take a full share of responsibility in the problems of the future and make them appeciate that they were an integral part of the Gas Industry in its public utility services.

Mr. D. M. HENSHAW, in seconding the vote of thanks, remarked that "Good wine needed no bush," and this was a "vintage year" in the Presidential Addresses to the Society. They welcomed such a clear summing up of the activities of the Industry. Sir Harold had pointed out how they had not only kept abreast of industrial and domestic developments, but had led the way in many directions, and increased the wealth of the country by the progress made in the Industry as a whole. He had also made it clear that in the proper utilization of the country's most important raw material they were not only rendering a service to the community, but were also making the Gas Industry indispensable through the many ways in which gas and its by-products were being used. They were becoming more and more essential materials to industry generally. Coming from one who possessed such unique knowledge of the scientific and administrative side of the Industry, this Address compelled the greatest attention, and they would, as Sir Frederick West had said, derive inspiration and encouragement from it. He assured Sir Harold that they would co-operate still more earnestly with the other sections of the Industry as a result of having listened to his Address and having received such valuable information so clearly set out.

The PRESIDENT thanked them very much indeed for the vote of thanks and for the very kind things they had said about his Address. It was a considerable task trying to summarize the position and tendencies of the Gas Industry to a Society of experts such as they, because he saw it rather from the angle of an observer; frankly, he had learnt a great deal by endeavouring to get his own views sufficiently clear to place before them. It had given him very great pleasure to prepare his Address because he felt it was the one thing he could do in return for the great honour they had done him in making him their President. Sir Harold said he had come into industry through the Gas Industry, and he had had an extraordinarily happy and interesting association with their Industry going back over sixteen years, and this honour the Society had done him had been one of the pleasantest things that had happened to him in that time.

The New President.

Sir HAROLD HARTLEY went on to say that his period of office ended very shortly, and he had to make an announcement of the name of his successor. Lord Ridley, he was glad to say, had accepted the invitation of their Council to succeed him as President. He had known Lord Ridley for many years, and there was no one whom it would give him more pleasure to welcome as his successor. Unfortunately he could not be with them that day. As they knew, he was a skilful amateur motor designer and builder, and also had a great record of public work; he was Chairman of the North-East Coast Development Board, Chairman of the Governing Council of King's College, Newcastle, Chairman of the Government Committee on Rent Restrictions, as well as being connected with various industrial undertakings. He also took a very active part in the work of the Northumberland County Council. He had a wide range of interests, and was closely connected with their raw material; so they were very fortunate in having Lord Ridley to succeed him, and there was no one he would welcome more warmly.

Mr. R. J. ROGERS proposed a cordial vote of thanks to Sir Harold for presiding over their Annual Meeting that day. He would not say anything more about the services he had rendered to the Society during the past year, but would like to express now their great appreciation of the efforts he had made to provide them with such an excellent successor.

The vote was warmly accorded and briefly acknowledged by the PRESIDENT, who remarked that anything he had been able to do had been a pleasure. It had also been a pleasure to be associated with Mr. Rogers, while he would also like to thank their Manager and Secretary, Mr. Burt, who was an old friend of his; he knew that any task with which Mr. Burt was concerned would be done well.

The meeting then terminated.

Annual Dinner

A large and distinguished gathering attended the annual dinner of the Society, under the Presidency of Sir Harold Hartley, C.B.E., M.C., F.R.S., at the May Fair Hotel, following the Annual Meeting. The members and their guests enjoyed a very happy evening together, and the speeches, which were of a very "light" order, were enjoyed and heartily applauded.

The company included Sir Josiah Stamp, G.C.B., G.B.E., Sir Henry Tizard, K.C.B., F.R.S., The Rt. Hon. Viscount Falmouth, Engineer Vice-Admiral Sir George Preece, K.C.B., Lieut.-General Sir Hugh Elles, K.C.B., K.C.M.G., K.C.V.O., Sir Alfred Faulkner, C.B., C.B.E., Sir Frank Smith, K.C.B., Sec.R.S., Professor A. C. G. Egerton, F.R.S., Sir Clement Hindley, K.C.I.E., Mr. G. W. J. Bradley, Dr. F. S. Sinnatt, C.B., M.B.E., F.R.S., Mr. L. Fawcett, Sir Reginald G. Clarry, M.P., and many distinguished representatives of the Gas Industry.

The Toasts.

Sir HENRY TIZARD, K.C.B., F.R.S., proposed "The Society of British Gas Industries." He explained that he had accepted that duty in the absence of Sir William Bragg, F.R.S. (the President

of the Royal Society), who had originally accepted it but, unfortunately, was not well. He read a message in which Sir William expressed profound regret and disappointment, which was the greater because the work of the Gas Industry had many points of contact with researches in which he had been interested, relating to the crystalline structure of materials, both metals and refractories. Sir William had added that perhaps members of the Society would at some time in the future be his guests at the Royal Institution, where he could show them some research results.

Coming to the toast, Sir Henry Tizard said that in the spirit of the true artist he had endeavoured to learn more about the Society's native anatomy, and had obtained a list of its rules, to which he made some amusing references. Some of those rules, he said, were profoundly impressive. One of the objects of the Society was "to obtain more favourable terms and rates from railway companies." Inasmuch as Sir Harold Hartley was President, and Sir Josiah Stamp was the Society's principal guest, one was impressed by the tact with which the Society did its business! Evidently a great sense of humour had existed in the Society from the beginning, because another object was "to promote just and honourable practices in the conduct of business." Another purpose was to establish, aid, and contribute to any charitable or benevolent fund; but then it was stated that the Society *may* promote research in connexion with its problems, that it *may* subscribe to funds organized for development, research, and publicity. He liked the use of the word "may"; it meant that no-one would seriously discourage the Society from doing those things, but at the same time it was left to, say, the imagination of the moment. He was not sure that the aim "to provide for and be a central medium of useful or confidential information" was not the most subtle! But the statement of that object indicated great foresight on the part of the originators of the Society, and in a sense it was quite serious. Most information that was useful was not confidential; at any rate, it should not be confidential, and if it were confidential it was no longer useful. He believed one of the most important things about such societies was that the individual units of it slowly began to learn that the "confidential" information which had been "kept secret" for so many years had been shared by other people, so that there was no great difficulty in telling them about it. Hence the spirit of co-operation!

In more serious vein, however, he said the Gas Industry was one of the greatest and most interesting industries in this country. It was founded scientifically in the true sense of that word, and from year to year it had carried out scientific and technical work. He did not mean necessarily the type of work which the pure scientist would regard as scientific, but work which was scientific because it aimed, by honest investigation, to effect great improvement in the Industry.

He had never come across a first-class biography of an industry. Perhaps that was because historians had not time to acquire a real knowledge of industry, and industrialists and technicians were too busy trying to earn a meagre living to be able to spend time writing a history. But a history of the Gas Industry would be a lively cross-section of the history of industrial and scientific development in England. It would be a history of one technical success after another; and it would include a history of rather sleepy times, when the Gas Industry had seemed to mark time a little and was perhaps assisted eventually not exactly by a *lead* from science, but by almost a kick in the back, by the discovery of something quite new, which the man-in-the-street might have thought would have spelt the doom of the Gas Industry, but which in fact had been a great incentive to it to reach greater heights and greater industrial successes. Whatever science did, whatever new discoveries it made, whatever new and alternative attractions to the consumer it introduced, it seemed that our great industries were always able to meet the new conditions, so that instead of a new discovery eliminating an industry, it might add another and make the old one better than ever.

One of the greatest successes of the Society was on the human side, in the co-operation of the various sections of the Industry, in the great spirit of the engineer, the spirit which led men eternally to strive to do something better than in the year before. That was why he was proud to propose the health of the Society. Its past history had been one of great success; and now that the coke-oven interests formed a new and important branch of it, it had even greater opportunities than formerly to do well for the nation and for its members. What he liked about such societies was that they were particularly adapted to the British temperament. There was a great deal to be said for large industrial organizations; but there was always something to be said against them, and he would feel rather apprehensive if all the great organizations of this country that were engaged in making gas appliances, and all the engineering apparatus for the producers of gas, were combined in one great industrial combination. He felt that the separation into units, run by individuals, had its great advantages from the point of view of the British temperament, that friendly competition was as valuable as friendly co-operation, and that, provided those engaged in the work were so connected with each other in their aims as to be able to develop scientifically and to exchange technical information, we had all the good points of a big industrial combination and we missed some of the dangers.

He coupled with the toast the name of the President.

The PRESIDENT, responding, paid a tribute to Mr. R. J. Rogers, the Chairman of the Council, who should have been receiving the bouquets, because he had borne the heat and burden of the day; when he was at the helm there was no cause for anxiety on the part of the President. Of course, Mr. Rogers had one great advantage, and the two sections of the Industry would not misunderstand a reference to him as the poacher who had turned gamekeeper. The affairs of the Society were bound to prosper in his hands.

The Society was extraordinarily fortunate, he continued, that Sir Henry Tizard had proposed the toast of its health, for he was a very old friend of the Gas Industry, and in his outspoken, clear, logical way he had often referred to the part which the Industry was bound to take in the industrial fabric of the country. Those concerned with the Industry had proved themselves very adaptable under changing circumstances, and they were at one with Sir Henry in regard to the value of individual enterprise, linked together by a society such as the S.B.G.I. After all, compromise between individuality (a great asset of this country) and linking together in common aims was absolutely necessary under modern conditions, and the Society represented the most admirable compromise.

After some references to his experiences at college and university, in the course of which he said his first contact with the Gas Industry was made many years ago, when in the course of a practical examination he was interviewed by Vernon Harcourt (the original Gas Referee, appointed in 1872), the President said he was particularly fortunate in having to serve two men such as Sir Josiah Stamp and Sir David Milne-Watson. He owed a great deal to Sir David, to whom he was grateful for having given him opportunities, during many happy and interesting years, of seeing science and industry working hand in hand, giving the confidence which came from successful co-operation in overcoming difficulties.

Mr. DOUGLAS W. TURNER proposed a toast to the guests, interspersing his remarks with a number of amusing stories. In the first place he endorsed the President's expression of thanks to Sir Henry Tizard for his excellent proposal of the toast to the Society. Of Sir Josiah Stamp, to whom he referred as a very distinguished industrialist, economist, and banker, he said that as Chairman of the London, Midland and Scottish Railway Company he was in many ways on common ground with the Gas Industry, for he was performing a valuable and indispensable service to the community; in performing that service he accepted great financial responsibility, the working margins being sometimes very narrow, calling for the exercise of great skill and ingenuity.

Welcoming Mr. H. C. Smith, President of The Institution of Gas Engineers, he commented on the happiness of the relations between the Institution and the Society over a very long period, thanked Mr. Smith for his support of the Society in the past, and congratulated him on his recent appointment as a member of the Fuel Research Board. As to Sir David Milne-Watson, when thinking of the Gas Industry one instinctively thought of Sir David, and when thinking of Sir David one thought of the British Gas Federation. Reference to the Federation gave Mr. Turner the opportunity to refer to its Officers' Panel, and to thank Colonel Ogilvie, Mr. W. J. Smith, and others concerned for their excellent co-operation in the work of that Panel.

Others to whom Mr. Turner extended a warm welcome were Mr. W. J. Sandeman, whose great experience, enthusiasm, and honesty of purpose were an example to the young men in the Industry; members of the Council of the Institution: Mr. J. R. W. Alexander; Dr. W. T. K. Braunholtz; Mr. G. W. J. Bradley (President of the Coke Oven Managers' Association); Mr. R. W. Foot (Chairman of the London and Counties Coke Association); Mr. L. Fawcett, a generous-minded leader of labour—and one of the outstanding features of the Gas Industry was its association with labour; representatives of the Press, particularly the technical Press for their continued support; and distinguished servants of the State and representatives of scientific organizations—Viscount Falmouth, Lieut.-General Elles, Engineer Vice-Admiral Sir George Preece, Sir Frank Smith, Sir Clement Hindley, Sir Alfred Faulkner, Dr. Sinnatt, Professor Egerton, and Sir Reginald Clarry.

SIR JOSIAH STAMP, G.C.B., G.B.E., made a delightfully humorous speech in response to the toast, and commented that there was hardly any range of human activity into which the word "gas" had not crept. His clever comments on some of the more jocular remarks of previous speakers, and the stories he related by way of illustration, were applauded. While he had come to appreciate, he said, from Sir Henry Tizard's remarks, why his efforts to secure a copy of the Society's rules had failed, he expressed his thanks to the Society for having given him an opportunity for

just a peep into the secrets of the Industry, and for having given its guests a very great time.

Mr. H. C. SMITH also responded to the toast. The two sections of the Industry represented in the B.G.F., he said, might be regarded as two engines pulling the same train in the same direction on the same set of rails, and they hoped that they would reach the same destination at the same time.

Commenting upon a reference to the narrow financial margins to which the supply side of the Industry had to work, he humorously remarked that they represented all that the manufacturing side allowed to those on the supply side, acting as agents for the sale of the manufacturers' goods. The Gas Industry was, however, a great co-operative movement, and those concerned with supply did their best to keep the manufacturers' alive (laughter). Quite seriously, however, both sides must pull together and co-operate in every possible way, and it was a source of great delight to him personally when the Institution, about ten years ago, had made it possible for the technical people on the manufacturing side to become members. The Institution's Charter made it clear that "the Gas Industry" meant not only the supply side but also the makers of appliances and plant, and he hoped that in the future it would be possible to collaborate even more closely.

Mr. R. J. ROGERS (Chairman of the Council) proposed the health of the Society's esteemed President, Sir Harold Hartley. Commenting in the first place upon Sir Harold's reference to him as a poacher turned game-keeper, he said he had been on the manufacturing side of the Gas Industry for the past six years, having spent some thirty years on the other side, and he was still endeavouring to discover which was the poaching side!

The Society, he continued, had been greatly honoured by the fact that so distinguished a scientist as Sir Harold had accepted the Presidency. His very high scientific attainments and achievements were well known, and during his extremely busy life he had occupied the Presidential Chairs of many distinguished scientific associations. He had rendered great service to the Gas Industry in general and to the Society in particular by helping in his own personality to forge more closely the vital link between science and industry. That problem of welding science and industry was generally admitted to be one of the most important human problems of the age, and its solution was more likely to be achieved by the efforts of those who like Sir Harold, combined in themselves an intimate knowledge of both science and industry, rather than by any number of people on either side exchanging views and experience. The possession of those dual qualifications, which enabled an individual to appreciate fully the needs of science and industry, was comparatively rare, but Sir Harold possessed them to a marked degree.

The thanks of British industry were due to Sir Harold for the manner in which he was placing his knowledge and experience at the disposal of a number of important organizations in this country. His activities, however, were not confined to our own country, because in his capacity as Chairman of the World Power Conference he was rendering outstanding service to other scientific and industrial organizations throughout the world. His distinguished work was recognized when he was awarded in Vienna last December the Wilhelm Exner Medal for services to industrial research. That Medal, founded sixteen years ago, had been awarded to many famous scientists, including Marconi, Haber, and Bosch, but only once before to a British recipient, the late Lord Rutherford.

Tendering to Sir Harold on behalf of the Society its grateful thanks for his services as President during the past year, he said it was characteristic of him that in all the associations with which he was connected he devoted unstinted and beneficial service. The members of the Society appreciated sincerely all that he was doing in the interests of the Gas Industry.

The PRESIDENT, responding, assured the members that it had been a great honour and pleasure to him to serve as their President, and he appreciated the opportunity enormously.

Referring to his successor, he said he was the only President who was to be succeeded by one of his pupils, for Lord Ridley was a pupil of his at one time. It was unnecessary to recall his achievements as Chairman of the North Eastern Development Board, and in many other capacities; but it was of interest to note that the incoming President was an engineer who had designed and built in his own garage, and had driven at Brooklands, a midget car with which he had broken a world's record.

B.C.G.A. Manchester District Conference at Warrington

Practical views on the use of gas domestically and in industry, and its relation to public health, were expressed by speakers at the Manchester District Conference of the British Commercial Gas Association in the Town Hall, Warrington, on May 5.

Alderman J. Poole (Chairman of the Warrington Gas Committee) presided during the morning session at the Town Hall, the Mayor (Alderman H. Sinclair) being present.

The Mayor welcomed the delegates and recalled that Warrington was first lighted with gas 117 years ago. The town of Warrington, he said, had always been a pioneer in the gas appliance industry. Sixty-six years ago Mr. Thomas Fletcher, who invented the gas fire, started work with the business and is now known as Fletcher, Russell, & Co. Subsequently, the late Mr. E. W. T. Richmond began the concern now known as Richmonds Gas Stove Company, Ltd. These concerns between them employed about 2,000 people and had an annual wages bill of about £250,000, and their importance to the town was, therefore, considerable. The two works took from the Corporation approximately 70 million cu.ft. of gas a year. The total number of consumers was 28,327—an increase of 1,600 over the previous year.

Alderman Poole said that by reason of its long history they were inclined to take the Gas Industry for granted—as they did many other wonderful things in life. It was only when they examined the Gas Industry that its importance to the community was realized, and it had to be admitted that no other industry gave as much to the community in the form of real wealth. Gas was first made in Warrington in 1820, and the town was first lighted by this method in 1821. It was on record that the town was one of the first six in the world to have a supply of gas available.

An address on "Recreation, Environment and Health" was given by Dr. R. Veitch Clark, Medical Officer of Health for Manchester.

The Conference was followed by a luncheon, a tour of the Works of Richmonds Gas Stove Company, Ltd. (Radiation Ltd.), and tea, while the members of the local branch of the Women's Gas Council attended a gathering in the Patten Hall.

The guests at luncheon included the Member for the Borough (Mr. Noel B. Goldie, K.C.), and Engineer Rear Admiral A. L. Picton (President of the Warrington Chamber of Commerce).

After the Loyal Toast had been honoured, Mr. F. B. Richards (Chairman of the Woodall-Duckham Companies) proposed "The Town and Trade of Warrington."

Responding, the Mayor outlined Warrington's eventful history, and said that Warrington ranked among the earliest manufacturing towns in Lancashire.

"The Gas Industry" was proposed by Mr. Goldie, who declined to burden his audience with figures. He did, however, pay genuine tribute to the importance and progressiveness of the Industry which his audience represented.

In his reply, Alderman Poole touched on the many residuals of coal, and also on its relation to public health. He appealed to Mr. Goldie, as a Member of Parliament, to do his utmost to see that the Government gave equal assistance and privileges to the gas as to the electrical industry.

The toast to "The Guests" was proposed by Councillor H. Massey (Deputy Chairman, Warrington Gas Committee), and was replied to by Admiral Picton.

Visit to Richmonds' Warrington Works.

A party of approximately 70 members subsequently visited the Works of Richmonds Gas Stove Company, Ltd. (Radiation Ltd.), situated outside the town, and were received by Mr. R. Poole (Director and General Manager) and Mr. Maurice Thornton (Director).

Particular interest was evinced in the productions which Radiation have introduced this year and specially the new "New World" cookers which are fitted with self-lighting hotplate burners, in addition to an impressive array of other new and exclusive features. Much time was also spent in the very extensive enamelling department, where, in addition to seeing the many processes in operation, the visitors were shown a special display which clearly indicated the many and separate stages of enamelling on cast iron as well as on sheet steel. The production of the new range of Radiation instantaneous water heaters was also examined, and a detailed explanation was given regarding the function of every component part, culminating in demonstrations of the sink and multi-point heaters in use under a variety of conditions. The manufacture of storage water heaters, including the "Equator" and "Newlyn," was also witnessed. The visitors were furnished with first-hand and practical information concerning the most recent equipment produced for cooking, water heating, and space heating by gas.

At the conclusion of the visit a vote of thanks to the Company was proposed by Mr. A. Cook (Engineer and Manager of the Warrington Corporation Gas Department). This was seconded by Mr. W. A. Deardon (Engineer and Manager of the Lancaster Corporation Gas Department), and responded to on behalf of the Company by Mr. Poole.

London and Southern Juniors
Subscribe to Institution Benevolent Fund
Presidential Collar Presented at Annual Meeting

It was unanimously agreed at the Annual Business Meeting of the London and Southern District Junior Gas Association, held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. 1, on Tuesday, May 3, that, so long as they were in a position to do so, an annual subscription of ten guineas be paid to The Institution of Gas Engineers Benevolent Fund.

The PRESIDENT (Mr. R. N. LeFevre) occupied the chair, and the meeting was honoured by the presence of Mr. D. C. Cross (President of the Southern Association of Gas Engineers and Managers), who had come specially to present on behalf of the donor a new Presidential Collar and Medallion given to the Association by their old friend and Patron, Mr. R. J. Milbourne. The occasion was also marked by the addition of a notable list of distinguished names to the list of Patrons of the Association.

The minutes of the previous annual business meeting, having been read by the Assistant Hon. Secretary (Mr. H. J. Risby), were duly confirmed and signed, after which Mr. A. S. Goldspink and Mr. E. C. Medwin were appointed scrutineers for the ballot for members of Council.

Mr. D. C. CROSS said it was a peculiar pleasure to him to be present on that occasion, for it was sixteen years ago, almost to the day, that he occupied the chair of their Association, not in the wonderful building they were in now, but in humbler quarters in Westminster. And it happened that sixteen years prior to that his father was elected President of the Southern Association of Gas Engineers and Managers, a position which he himself had the honour to hold at the present time. He was there primarily to make this presentation of a Presidential Collar and Medallion on behalf of Mr. Milbourne; but he also looked upon it as an opportunity of being present in his official capacity of President of the Senior Association—to show the interest which the two Associations took in each other. He was delighted that their Association was affiliated to the Senior body because that had been one of his principal aims when he occupied their Presidential chair sixteen years ago. The Senior Association always welcomed the Juniors' President and Secretary at all their gatherings, and they followed their activities with the keenest interest and admiration and fully recognized the value of their technical work.

In making the presentation of the Presidential Collar, Mr. Cross said that Mr. Milbourne took a particular interest in their Association; he not only presented a silver medal for the best Paper read, but he was now making them the gift of this Presidential Collar—an honour which, he believed, was shared by only one other Gas Association in the country, namely, the Midland Junior Gas Association, to whom a similar collar had also been given by Mr. Milbourne; not even the President of The Institution of Gas Engineers wore such a badge of office. It showed the esteem in which their Association was held by the senior members of the Industry that instead of presenting anything to a Senior Association Mr. Milbourne had selected the London Juniors for his gift. Mr. Cross also complimented the Association in that one of their members had been awarded the Institution Bronze Medal, which was a most coveted award. Having read a letter from Mr. Milbourne regretting that ill-health prevented him from being present, Mr. Cross invested the President with the Collar, wishing the Association every good fortune in the future and offering Mr. Milbourne's blessings on the work they were doing.

The PRESIDENT said they were greatly indebted to Mr. Cross for his presence on that occasion and for the encouraging words he had spoken. They were also greatly indebted to Mr. Milbourne for the presentation of the Collar, and he was very proud to be the first President to wear it.

On the proposition of Mr. H. W. HOLGATE (Gas Light and Coke), seconded by Mr. F. C. SMITH (Gas Light and Coke), it was unanimously agreed that a letter be sent to Mr. R. J. Milbourne recording the meeting's grateful thanks for the presentation of the Presidential Collar and for his great interest in the Association, at the same time offering him their sympathy in his ill-health.

The financial statement was presented by the Hon. Treasurer (Mr. S. J. Gibbons) and was unanimously adopted on the proposition of Mr. F. C. SMITH, seconded by Mr. H. C. SIMS (South Metropolitan).

The annual subscription of ten guineas to the Benevolent Fund of The Institution of Gas Engineers, previously mentioned, was unanimously approved on the proposition of Mr. J. M. WEBBER (Croydon), seconded by Mr. A. BROADBENT (Gas Light and Coke).

The President's Report.

The PRESIDENT then presented his report on the work of the Association for the Session 1937-38. In the course of his remarks, Mr. LeFevre said that during the session which was now drawing to its close not only had their standard been satisfactorily maintained, but, he ventured to suggest, had, in many respects, surpassed previous records. During the year their membership had passed the 500 mark and now stood at a total of 526, including one lady member. The quality of the Papers presented continued to be such that they were recognized as among the foremost Associations in the Gas Industry for the dissemination of technical information. He went on to refer to the interesting Papers and visits during the session and mentioned in particular the outstanding achievement of Mr. F. O. Hawes, who, for his Paper on A.T.B. Numbers which he read last year, had been awarded all the medals available—the I.G.E. Bronze Medal, the Milbourne Silver Medal, and the Medal presented by the S.B.G.I.

Continuing, the President remarked that the Annual Dinner was generally agreed by the record number of members who attended to have been an unqualified success; they were honoured by the presence of many distinguished leaders of the Industry. Their new Hon. Treasurer, Mr. Gibbons, was to be congratulated on the success he had made of his first year of office, and they were grateful to him for the efforts he has made on their behalf. It was with regret that they learnt that Mr. Higton was reluctantly compelled to relinquish the Hon. Secretaryship of the Association, which he had served so whole-heartedly for so many years. To most of them the names Higton and London Juniors were synonymous. They were, however, fortunate in obtaining Mr. Higton's offer to continue to serve on the Council—an offer which, he might add, was gratefully accepted by all who had the interest of the Association at heart. They were also fortunate in securing the services of Mr. Dawkins, of Beckton, who had generously offered himself for election as Hon. Secretary. They were indebted to him and wished him every success.

In conclusion, Mr. LeFevre took the opportunity of thanking all those—his Company, the Officers and Council of the Association, the Technical Press, and, of course, all the members—who had contributed to such a successful year's work.

The President's Report was unanimously adopted, after which an alteration to Rule 4—replacing the word "Company" by "Undertaking."—was agreed on the proposition of Mr. J. GRAYSTON (Romford), seconded by Mr. C. A. DEAS (Hertford).

A cordial vote of thanks to the Officers and Council for their work was accorded on the proposition of Mr. BROADBENT, seconded by Mr. E. W. B. DUNNING (Gas Light and Coke), which was duly acknowledged by the PRESIDENT. It was agreed, on the proposition of Mr. S. C. WALDOCK (Gas Light and Coke), seconded by Mr. H. W. H. BUTTERFIELD (South Suburban), that a testimonial be presented to the retiring President, for which Mr. LEFEVRE returned thanks.

A Tribute to Mr. Higton.

The PRESIDENT went on to pay tribute to Mr. Higton's work as Hon. Secretary of the Association during the past nine years. To most of them he *was* the Association, and they were very glad he was going to continue on the Council. But they could not let him relinquish office without some recognition of all he had done for them. Mr. LeFevre intimated that it had been the unanimous wish of the Council that Mr. Higton's name should go forward with a view to election in due course to the Presidency of the Association. Mr. Higton, however, had felt himself unable to accept this office, and it was therefore the desire of the Council that a testimonial be presented to him such as he would in the normal course of events have received on reaching the Presidential chair.

Mr. WEBBER, in seconding this proposition, said they all regarded Mr. Higton not so much as the Secretary but as a very dear friend.

The resolution was carried with enthusiasm, and Mr. HIGTON expressed his sincere gratitude.

The representatives to serve on the District Education Committee were announced as follows: Mr. T. H. Prater (Isle of Thanet), Mr. S. C. Waldock (Gas Light and Coke), Mr. H. W. H. Butterfield (South Suburban), and Mr. B. W. Dawkins (Gas Light and Coke).

It was agreed that a letter be sent to Dr. J. N. Long (Principal of the Westminster Technical Institute) and also to the staff, thanking them for the help and facilities afforded to the Association at Council Meetings.

A vote of thanks to the Technical Press and the representatives who attended the meetings of the Association was carried on the

proposition of Mr. R. SUMMERSON (Luton), seconded by Mr. F. O. HAWES (Tottenham), and acknowledged by Mr. F. CLIFTON SHERRIFF, of the "GAS JOURNAL."

New Patrons.

The PRESIDENT announced that the following gentlemen had kindly agreed to become Patrons of the Association:

Mr. A. H. Andrews (Chief Engineer, South Metropolitan Gas Company.
Mr. W. H. Bennett (Chairman, Associated Gas and Water Undertakings, Ltd.).
Major F. J. Bywater (Comptroller, South Metropolitan Gas Company).
Mr. C. M. Croft (Chief Engineer and General Manager, Wandsworth and District Gas Company).
Mr. D. C. Cross (Engineer and General Manager, Lea Bridge District Gas Company).
Mr. Wm. Cash (Chairman, Croydon Gas Company).
Mr. E. V. Evans (General Manager, South Metropolitan Gas Company).
Mr. Frank H. Jones (President, South Metropolitan Gas Company).
Mr. R. W. Hunter (Chief Engineer, Gas Light and Coke Company).
Mr. W. J. Sandeman (General Manager, Croydon Gas Company).
Mr. H. C. Smith (Chief Engineer, Tottenham and District Gas Company).
Mr. Henry Woodall (Chairman, Tottenham and District Gas Company).

The Officers and Council for the session 1938-39 were elected as follows:

President.—S. C. Waldock (Gas Light and Coke).
Senior Vice-President.—H. W. H. Butterfield (South Suburban).
Junior Vice-President. F. O. Hawes (Tottenham).
Hon. Secretary.—B. W. Dawkins (Gas Light and Coke).
Assistant Hon. Secretary.—H. J. Risby (Severn Valley).
Hon. Treasurer.—S. J. Gibbons (Gas Light and Coke).
Hon. Auditor.—G. Wilson Smith (Gas Light and Coke).
Members of Council.—G. Dougill (Gas Light and Coke), C. A. Deas (Hertford), J. Grayston (Romford), F. H. G. Higton (East Surrey), H. Moys (Croydon), T. G. Noble (Gas Light and Coke), P. Richbell (Croydon), and H. J. Risby (Severn Valley).

A vote of thanks to the scrutineers was carried on the proposition of Mr. R. J. PEPPER (Gas Light and Coke), seconded by Mr. G. GARDINER (Wandsworth), and the meeting concluded with a reminder by the President of the forthcoming summer visit to Folkestone on June 25.

North of England

Annual Meeting

Gas Managers' Association

The Annual Meeting of the North of England Gas Managers' Association was held at the Neville Hall, Newcastle-upon-Tyne, on Friday, May 6—Mr. C. DRU DRURY (Sunderland) presiding in the unavoidable absence, through illness, of the President (Dr. J. T. Dunn).

Prior to the meeting luncheon was served at the County Hotel, when Mr. Dru Drury welcomed Mr. H. C. Smith (President of The Institution of Gas Engineers).

Before commencing the business of the meeting, the Chairman referred to the death since their last meeting of Mr. E. F. Hooper, of Stroud. He had been instrumental in founding the library at the Newcastle Gas Office. The members stood in silence as a tribute to his memory.

The following were elected: From Associate to Member, F. P. Fall (Sunderland); Members, R. Gray (Newcastle), Frank Hornby (Annfield Plain), A. S. Middleton (Durham), C. C. Wormsley (Sunderland); Associates, J. Scott (Sunderland), E. B. Twist (Hartlepool); Student, G. W. Orchard (Sunderland).

On the proposition of the CHAIRMAN, Mr. F. P. Tarratt, who retired recently from the Newcastle-upon-Tyne and Gateshead Gas Company, was elected an Hon. Member of the Association. Mr. Tarratt was well known in the Industry, said the Chairman, both as a Past-President of The Institution of Gas Engineers and as Chairman of the Regional Council.

It was agreed that a donation of ten guineas be contributed to the Benevolent Fund of The Institution of Gas Engineers.

Mr. Mitchell gave a report on the work of the Education Committee and said they had 78 students at Rutherford College, Newcastle, and a course had been commenced at Middlesbrough which would provide for students in that area. Seventy-eight seemed a fair number, said Mr. Mitchell, but when spread over various grades it meant that in some stages the classes were very thin, and it was difficult to preserve the continuity of the courses. It was disappointing for a student to reach a certain stage and then find he had to wait until there was a sufficient number of students gathered together to form a class. He hoped every encouragement would be given students to take up classes and follow them right through. Unless there was an influx of students, in manufacture in particular, it was going to be difficult to keep the classes going.

The CHAIRMAN said he would like to support the plea for the younger men to avail themselves of the facilities which had not been so readily available in the past as now. He quite realized that in a district like theirs the number of students for gas engineering must become exhausted after a time, but with the inclusion of distribution students and others there ought to be plenty.

He invited the President of The Institution of Gas Engineers, Mr. H. C. Smith, to speak on educational changes.

Mr. H. C. SMITH said that in future it would be possible for anyone in the Industry to take the higher grade certificate but not necessarily be on the practical side. That might seem like a retrograde step, but if they appreciated the reasons which led the Council to take that step they would alter their views. It was found there were several young men in the Industry, perhaps engaged on the clerical side, or in connexion with sales, who took the trouble to take evening classes and pass their ordinary examinations only to find they could get no further because they were not on the practical side of the Industry. He knew of a case of a boy engaged as a clerk who took the ordinary grade and went on to gas engineering. He wanted to get on but found he could not move any further. He went on with evening classes and took his degree of B.Sc. in engineering. It seemed a little hard that a boy with sufficient grit and ability to take his B.Sc. in engineering should be debarred from taking his higher grade certificate in gas engineering. Some engineers had been more sympathetic with their staffs than others and, anxious to encourage, had given them some description which qualified them to take the higher grade examination because the chief called them something which perhaps really did not describe what they were. Then other managers, being more of purists, would not describe a candidate in such a way and the candidate would be barred. There were so many difficulties that it was thought the best thing was to make the examination open to everybody in the Industry and if a candidate could pass then he would say good luck to him.

Officers for the ensuing year were elected as follows:

President.—C. Dru Drury (Sunderland).
Vice-President.—T. Law (Malton).
Hon. Secretary and Treasurer.—H. D. Lees (Hexham).

The meeting concluded with tea at the County Hotel.

Present Day Problems - - - -

A Paper read before the North of England Gas Managers' Association at Newcastle on May 6.

by
CHARLES BATEMAN,
Engineer and General Manager, Harrogate Gas Company.

This being the Annual General Meeting of the Association, I think it is appropriate that the Paper should deal with those aspects of the Industry which unquestionably at the present time evoke the greatest concern.

For this purpose I have selected four main themes—first, the question of coal and the relation to it of the yield from the chief by-product; secondly, the amalgamations of undertakings, and the advantages that ensue; thirdly, the price basis most calculated to stimulate increased consumption per consumer; and fourthly, publicity services.

At the outset I would bespeak particular attention to what I regard as a new and attractive suggestion coming under heading No. 3—*i.e.*, concerning the basis of gas prices—and trust that this will induce useful discussion.

Price of Coal and Yield from By-Products.

Since the Coal Mines Act, 1930, came into operation we have seen a gradual but certain tendency towards virtual monopoly in the coal industry. No reasonable objection could have been raised against the original objectives of the Coal Selling Schemes, which were:

(*a*) To pay mine workers a reasonable wage, and
(*b*) to yield to the coal owners a reasonable return on the capital invested.

Since the Selling Schemes came into operation on Aug. 1, 1936, the effect upon the Gas Industry has been to increase the cost of coal by an amount reaching, in some cases, as much as 5s. or 6s. per ton, and these increases are already partially reflected in the returns of the Ministry of Mines. The profits of the Yorkshire Collieries for the nine months ended Sept. 30, 1937, as compared with the nine months ended Sept. 30, 1935, had increased by £1,355,000.

The quantity of coal available for consumption for all purposes in Great Britain has increased by leaps and bounds since 1933, when it stood at 148,333,000 tons. By 1935 it had jumped to 164,500,000 tons; 1936, 176,000,000 tons; and last year to 182,000,000 tons, figures which one might reasonably assume would have had a tempering effect, but it is not evident in coal prices asked during the last two years. With such progressive figures as these, in gas output, most of us would have been recommending our boards or committees to sanction reductions in the price of gas.

We know, to our cost, the state of the coke market abroad, which, to say the least of it, is stagnant. Many reasons have been given, the chief among them being the threatened scarcity of coke twelve months ago, with the tendency it induced to overbuy, and the exceptionally mild winter experienced in the Scandinavian countries, which caused a large carry-over of stocks.

One may look for a downward pressure upon prices of coal for export. The forward position is said not to be too reassuring but, whatever the issue, one thing is fairly certain, and that is, for the first time the controlled coal sales system is meeting its real test. Last year at this time trade was booming and prices were rising, under which conditions the Selling Schemes thrived. A far different state of affairs exists to-day. Will the Schemes withstand the changed conditions and have within them the degree of flexibility imperatively needed to meet the situation? Prices have undoubtedly been forced too high, and proof is clearly shown by the lack of orders or enquiries in the coal export trade, which, facing competition from overseas producers, cannot be bolstered up by the artificialities of controlled pricing.

It remains to be seen whether these tendencies have their counterpart in the inland trade of this country, and if boom prices can be maintained in the face of a serious falling off in trade.

It is announced that an increase in prices may follow the extension of the principle of holidays with pay, to 150,000 miners in the Yorkshire coalfields, which concession will increase the cost of production but nominally when reduced to terms of "per ton of coal mined." In South Wales the miners have secured a week's holiday with pay, which they say is not enough, and they are now agitating for an additional week. Fortunately for the Gas Industry, during 1937 we were able to counterbalance to some extent the increased price of coal by increased prices for coke, because demand was temporarily in excess of supply. This phase of higher prices has not lasted as long as anticipated; generally speaking, coke sales and prices to-day are very disappointing. The position is unlikely to improve. The trade position is becoming easier, the number of coke oven plants being installed is increasing, and more coke will be available for the domestic market.

An effort is at present being made in Yorkshire to stabilize prices. Various meetings have been held between coke oven and gas coke producers, and probably, in the near future, an agreed minimum price will be arrived at in each district for the respective classes of coke, which, if adhered to in a gentlemanly way, will provide some resistance to the adverse effect of higher coal prices.

The large consumer of coke must not be forgotten. I suggest that here our chief competitor is not oven coke, but cheap coal, fired by means of automatic underfeed stokers. I have recently had experience of this competition in many parts of my area of supply, and, before being given an opportunity of discussing the proposition with the consumer, found in several cases that these stokers had been installed and contracts already fixed for coal. I have been able to verify that suitable coal is being delivered for this particular purpose at a cost of 23s. per ton to the consumer.

Looking at the whole position from the Gas Industry's point of view, it would appear that the tendency is gradually towards complete gasification, and if the aforementioned tendencies continue, this is, I believe, the only ultimate solution. We shall then buy less coal, sell no coke, and by correct selling of gas eventually become purely gas salesmen. Gas will take the place of all competitive solid fuels, but only if tied up with a low commodity charge, which phase is dealt with later in this Paper.

Amalgamation of Gas Undertakings.

One other point of the greatest importance, and occupying the minds of many at the present time, is the question of amalgamations of undertakings, the smaller undertakings being taken over by the larger, or several becoming constituents of a holding company. Whichever method is adopted, I am convinced that it is a sound policy and, indeed, the only salvation of the smaller undertakings.

Some years ago six smaller and adjacent companies were taken over by the Harrogate Gas Company. That policy has undoubtedly proved correct, as the following figures indicate:

Output of the six undertakings prior to taking over	88 millions
Output since taking over (1938)	135 ,,
= 53·4% increase	

There are many other outstanding examples of such amalgamations which have been highly successful, such as those sponsored by Bath, Swindon, Portsmouth, and Southampton.

Turning to the other alternative—the holding company—my experience leads me to the conclusion that this modern development has amply justified itself. Instead of several undertakings being in watertight compartments, there can be regular meetings of the senior officials of all constituent companies of a holding company, whereby a given problem can be discussed with absolute freedom, a sound conclusion reached, and the result put into immediate operation. Policies can be pooled and made common to the whole of the constituent undertakings.

Dealing with the question of absorbing smaller undertakings, it is very noticeable that recently many undertakings have either extended their area of supply into, comparatively

speaking, rural areas, or have taken gas into rural areas which have been in their area of supply for some time but which have not had the benefit of a supply. Such extensions have taken place in Harrogate, and although a first canvass has been disappointing, and the scheme not easy to justify on paper, always it has ultimately turned out to be remunerative. For example, the following are results in connexion with a gas extension where electricity had been available for some considerable time previously: From original enquiries only 17% of the possible consumers agreed to take a supply, yet the extension was carried out, and the percentage is now 83.

Just recently I have had an opportunity of showing how benefit can be obtained by the principles involved in the foregoing remarks. A small company, adjacent to my own area of supply—a constituent Company of the United Kingdom Gas Corporation, Ltd.—was given the benefit of an exhibition, which it had never previously been able to afford. A local hall was taken for five days, material for the exhibition was loaned to the company, and a series of health talks arranged. During the five days the sale of appliances exceeded the total of the same undertaking for the whole of the year 1937. Since then a canvasser and gas fitters have been allocated to this district; the results have been phenomenal.

Centralization of Mechanical Accounting.

Doubtless you are aware that Harrogate is a constituent Company of the United Kingdom Gas Corporation, Ltd., and, following the policy of centralization of management, mechanical accounting has been introduced. We were not sufficiently large to make full use of accounting machinery which, for maximum benefit, needs to be in full time operation. In order to obtain the maximum service from the installation, the Corporation arranged for the billing of monthly and quarterly accounts and the slot collections of a number of the smaller neighbouring Companies to be done by the Secretarial Department at Harrogate. From the early part of the year 1937 the billing of the following companies has been carried out at the Harrogate Office: Castleford, Pudsey, Otley, Drighlington, Garforth, Featherstone, and Rothwell.

The consumers of these companies are roughly equal in number to those of Harrogate; and consequently, double the amount of output has been done from Harrogate, and that without any addition to the staff.

Two billing machines are in use and four girls have been trained to operate them. By periodically relieving each other on the machines no danger of fatigue or boredom arises. There is also the usual accompanying addressing machine which is useful not only for the accounts, but also for circularizing of customers as may be deemed necessary.

The machines in use are known as "The High Key Board" and the "Moon Accounting Machine," both supplied to special specification. These adding and listing machines and one calculator were all supplied by the Burrough's Adding Machine Company.

One Adrema addressing machine and one plate embosser are also in use, both supplied by the Adrema Company, Ltd. All the plates necessary are embossed on the premises by our own operators.

The change-over from hand accounting to machine accounting resulted in "snags" being experienced. Mr. Seaton, the Secretary, decided to make haste slowly, first making the change on the accounts of the smaller companies, which were somewhat less complicated than those of Harrogate. Snags were remedied as observed, and by the second quarter of the year the billing proceeded quite smoothly. The accounting for slot collections was then undertaken, and although only a small proportion of this has yet been done, it is proceeding quite smoothly. It is intended later to utilize the machines for cost accounting.

A New Basis for Gas Charging.

Method of charging for gas is a matter which has occupied the minds of many. It is generally agreed that the ordinary method of a flat rate charge should, if possible, be superseded by some form of standing charge and a low commodity charge. It is rather superfluous for me to say that the most beneficial business we can acquire is increased consumption per consumer; by this I mean an increase in the gas consumed by the existing consumers as opposed to new ones. This can only be done by making the price of gas attractive, and competitive not only with electricity but with solid fuels, in substituting which lies the greatest field. The commodity charge must be arrived at by a knowledge of competitive solid fuel prices, and be judged by local conditions, including the prices at which competitive fuels are available.

The commodity price I have in mind for my own area of supply is one not in excess of 4½d. per therm gross.

We should all like to be able to go to each individual consumer and say—"Your consumption last year was so much; this year all you use in excess will be supplied at half-price." This in our case would be 4·05d. per therm net, instead of 8·1d. per therm net. But this is impossible because of varying consumptions—the man with a high consumption would say he was being penalized for being a good consumer in the past. How, then, shall we meet this reasonable objection?

I see no reason why a combination of the three charges—(1) standing charge; (2) low commodity charge; and (3) block system—should not be used. My idea is that the consumer's rateable value should be taken to arrive at a suitable block, and all gas above that block given a low commodity charge. I have already analyzed the quarterly consumers in my area of supply in blocks of £5 rateable value, and it shows very clearly that the consumption varies directly with the rateable value. If a block is based on rateable value, then one approaches as nearly as possible to the ideal method of charging—viz., to offer the consumer all excess consumption at half-price. Such a scheme has the advantage of bringing all consumers into line, without the disadvantage of only consumers to whom benefit is given immediately changing over.

Although I have not completed my analysis for Harrogate, this method of charging has been applied to a smaller undertaking, where the present method of charging for gas is by means of a flat rate, the total revenue being approximately £6,600. If this Company put forward a standing charge of £2 per annum for ordinary consumers, and £2 12s. per annum for prepayment consumers, together with a commodity charge of 5d. per therm, the estimated loss would be £1,120. By my revised block system with a commodity charge of 5d. per therm the loss in revenue is shown to be only £450.

There is also the advantage that all consumers commence immediately on the new method of charging, which is, I maintain, an immediate inducement to consumers to use more gas.

The prepayment consumer is the one presenting the greatest difficulty, and in this case my proposal is to take all prepayment consumers in one block. In other words, take the average consumption per consumer, of the total prepayment consumers, this block to be charged at normal rates, any excess being at half-price.

In the case of my own Company the average consumption last year was 13,345 cu.ft. In other words, the consumption per quarter was in the region of 3,300 cu.ft. I would propose, in this case, that the whole of the prepayment meters should be immediately reset at the higher rate of consumption—that is, consumers will receive double the amount of gas per coin compared with the amount received previously.

In order to collect the first commodity charge I suggest each consumer should have a prepayment money box, and they be asked to prepay the difference between the old and the new price on the 3,300 cu.ft. on the basis of a fixed weekly charge, this amount representing approximately 5s. 2d. per quarter or 5d. a week. No doubt the simplest method to adopt would be to request a payment of 6d. per week, which is not an extortionate amount, particularly in view of the fact that the consumer would realize that every coin inserted in the meter obtained twice as much gas as previously. In fact, one can go a step further and not give quite double the amount of gas, thereby, increasing the rebate, which would be available to meet any possible discrepancy in the weekly payment.

I have also applied the scheme to a company where the number of ordinary consumers is approximately 1,000, and taking rateable values in steps of £5 to £150, as in the case of my own Company, the average consumption per consumer has a definite relationship to the rateable value.

Another advantage of the block system is, of course, that the question of collecting a standing charge in advance from ordinary consumers is disposed of, which in itself is an important factor, apart from the fact that a standing charge for gas is in effect a lever for electrical competition. The electrical salesman immediately asks, "Why pay a standing charge for a commodity which is to perform a similar duty

and for which at the rate of ¼d. per unit you can obtain 360 units? "

Another point in favour of this method of charging is that the whole of the consumers automatically go on to the new basis, and potential loss is immediately ascertainable. Even with a standing charge and a low commodity charge, I believe the general experience is that it takes some considerable time for even consumers who benefit to be converted to the new method.

A comparison of the two methods of charge in the Company mentioned above shows that under a two-part tariff 488 consumers benefit with a loss of revenue of £1,122, and under the block system 300 consumers benefit with loss in revenue of £453.

At the present moment the method for charging for gas in Harrogate is quite straightforward, being 9d. per therm, less 10% discount for payment on or before a certain date, this being a net figure of 8·1d. per therm.

The only methods of charging for gas which have already been introduced to induce further consumptions are as follows:

CENTRAL HEATING.

4½d. per therm, *less* 10%, through separate meter, no standing charge.

BAKERS' OVENS AND GAS ENGINES.

Up to	100,000 cu.ft. per annum,	9d. *less* 12½%	—7·875d. per therm
Between 100–	250,000 „ „ „	9d. *less* 20 %	—7·200d. „
„ 250–	500,000 „ „ „	9d. *less* 30 %	—6·300d. „
„ 500–	1,000,000 „ „ „	9d. *less* 40 %	—5·400d. „
Above	1,000,000 „ „ „	9d. *less* 50 %	—4·500d. „

FISH FRYERS.

Standing charge of £1 per month, and gas at 4½d. per therm, *less* 10%. Also certain special contracts to large consumers.

The greatest problem, and, of course, the most important one, one which we have to face in the Industry, is increase of gas sales. Undoubtedly, the whole outlook of salesmanship and, shall I say, "showmanship," has completely altered during the last few years. The method of approach to the consumer is, in my opinion, a comparatively simple matter as compared with the method of approach to architects, and here I have found this a most difficult proposition, and although in Harrogate we are constantly in touch with them and circularize them with the latest information, they are the most difficult class of people to induce to adopt anything which appears to be of a revolutionary nature. This is a point on which more ought to be done nationally, as compared with the individual undertaking.

A good deal of thought has been expended on our showrooms and displays, and I feel that an atmosphere has now been created locally that our window displays are the best in the town. Many showrooms that I have visited have, in my opinion, completely missed the point, due to overcrowding, and I am a firm believer in an attractive display with a single appliance. Furthermore, the showroom should not have a mixed collection of appliances; these should be of small number, and different types of appliances should be allocated to different parts of the building. Then, if necessary, a further display should be arranged showing appliances *en masse*.

As a matter of interest, all appliances, including water heaters, are sold on hire purchase terms, a special point being made that they are all "fixed free," with free maintenance for the purchase period. My Company have concentrated on the "Ascot" range of water heaters, with the exception of a circulator which is made to our own design, the following being a list of the latest terms:

—	Cash Price.	Hire Purchase Terms per Quarter.		
		2 Years.	3 Years.	5 Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Ascot sink heater, R./12/4	4 19 6	0 13 0	0 8 10	0 5 6
5% discount for cash with order. Fixed and maintained free.				
Ascot boiling water appliance, RS.52/1..	8 7 6	1 1 10	0 14 11	0 9 4
5% discount for cash with order. Fixed and maintained free.				
		3 Years.	5 Years.	7 Years.
Ascot multi-point, NEA.38	19 10 0	1 14 8	1 1 8	0 16 1
Ascot multi-point, NEA.32/M	15 15 0	1 8 0	0 17 6	0 12 11
5% discount for cash with order. Fixed and maintained free.				
Ascot bath heater, SG.32/1	12 0 0	1 1 5	0 13 5	0 9 11
5% discount for cash with order. Fixed and maintained free.				
Spa water heater	12 10 6	1 2 5	0 13 11	0 10 4
5% discount for cash with order. Fixed and maintained free.				

These revised terms have only been in operation since Jan. 1 this year, and although the total sales of these appliances are still small compared with what can be done, they already show an increase of nearly 400% in the first three months of this year.

The Home Service Department is another branch which I have considered for some time past to be an important feature, and is, in its broadest sense, an effort on behalf of the gas undertaking to inspire confidence and a friendly regard, together with an actual interest in the activities of the company, from the women consumers of the area.

Its technique includes demonstrations, lectures, home calls, and services to the future consumer in the business and school girls of the town, together with constant and varied instruction in the everyday task of home cookery.

In addition, a further service is now available in kitchen planning. Advice is given on the placing of equipment for labour and step saving, and in the erection of new houses consumers are invited to leave the arrangement of the kitchen furniture and fittings to this department, when a complete plan, with explanatory notes, is provided free of charge, showing the experts' way of planning to the advantage of the housewife.

This department has considerably enlarged its field of service, and apart from the lectures which are held twice weekly throughout the year, evening classes and afternoon instruction classes are a regular part of the work.

Problem Day has been very popular. Housewives who have not been successful in their efforts at home are invited to attend this class and prepare dishes, under the supervision of the demonstrator, until satisfactory results are obtained. Thursday has become "Complete Meal" day, and Friday is now recognized as "Request Day." For this, consumers are asked to put their requests in a "Suggestion Box," and from these the menu for following demonstrations is made up.

The Gas Development Association for Women, inaugurated in 1934, is in a very flourishing condition and the standard of membership is very high. The membership has reached the maximum seating accommodation of the lecture room, and the monthly meetings are well attended. The type of lecturer provided at these meetings is carefully selected by the Committee, and the talks have proved of an educational and informative nature. One meeting during the past year was of an unusual nature, in that members were asked to contribute Economy Hints in Household Management. This request produced all types of useful hints on every phase of housewifery, which were sorted out into classes and reprinted in pamphlet form for distribution to the public.

One of the most successful sections of the work of this Company has been the Health and Home Service Exhibitions, which have been organized from time to time over the past few years. Always bearing in mind the national drive towards better health, a Health Talk has formed the principal part of the programme, backed by short but varied demonstrations in home cookery and laundry, with hot water playing a useful part. Care has been taken in arranging the foods used in the actual demonstrations, so that they coincide with the subject of the health talk. All sections of food have been explored, and separate lecture weeks, on dietetic and balanced meals, have been organized.

Regarding the future consumer, this important part is well catered for. Group classwork is undertaken as follows: Business girls' classes, both oral and practical, are organized during the winter months, two evenings of the week, and at Christmas-time two prizes are awarded by the Company for the best results for Christmas cakes.

Every business house and shop where girls are employed is circularized in the early autumn, and the members are enrolled in good time for the evening sessions.

Girl Guides come in batches of 12 to 15 in the evenings to be examined for the Cook's Badge, and general knowledge.

Periodically, in co-operation with the Director of Education and principally during the period of health exhibitions, batches of school children attend at the showrooms, when a half-hour health talk is given, followed by a tour of the gas showrooms, with explanations of the various appliances by the staff.

Evening lectures to Women's Institutes, Women's British Legion, National Council of Women, and similar bodies are

arranged on an average of one per month over the whole area.

The Gas Development Association for Women explores a further avenue of education in the visits which are organized to manufacturers' factories, and each year for the past four years a visit has been organized to the Ideal Home Exhibition. This year it is hoped to organize a visit to the Empire Exhibition, Glasgow, in conjunction with neighbouring undertakings.

Members of the Association have learnt to take a lively interest in the activities of the Company, and they are able to express an informed opinion on matters affecting the use of gas in the home, and also to influence friends and neighbours in its favour.

It should be noted that the approach to the instruction in the use of gas appliances is made through the introduction of larger questions commanding special interest, such as health education, food values, and the correct balance of meals.

In these days when the question of national and personal fitness is so much under discussion and consideration, it is not out of place to mention the great contribution which our Industry is making. To my mind we have not sufficiently made use of all that the Gas Industry has done and will do in the future in helping to bring about that ideal state of physical fitness which has become a matter of national concern. I think this is one of our strongest points for a new form of propaganda.

It would be presumption on my part as a Gas Engineer to trespass on the preserves of the medical profession, but I do think it is opportune that we should consider just a few of the things wherein we can co-operate with the medical profession in its fight against sickness and disease. Take, for example, atmospheric pollution. Anything which will improve the well-being of a race is deserving of our attention. During the last 50 years the problems of pure water supplies, efficient sewage disposal, epidemic disease, and housing have all been faced with a certain degree of success. There remains in atmospheric pollution one of the greatest enemies of health.

Fog, peculiar to an industrial city, is due to smoke and not to natural causes. Diseases of the lungs and respiratory tract follow directly upon the appalling amount of atmospheric pollution, and there is always a leap in deaths from these diseases following directly upon the occurrence of fog.

The Paper given recently at Birmingham by Sir Philip Dawson was most interesting, as was also the contribution to the discussion by Mr. Shapley, of Leeds, in pointing out that for the past twenty years he had used nothing but smokeless fuel in his own house. It would be most interesting to know how many representatives of the Gas Industry here to-day could truthfully make such a statement.

We have also medical opinion behind us, and in this connexion I quote the Special Analytical Sanitary Commission of the *Lancet*, who stated:

> "Most minute tests failed to find any deleterious products in the air of the room, in spite of the fact that no special precautions were taken to ensure ventilation. Summing up the evidence gained from the entire results of the investigation, we are induced to express the opinion that gas can be used for warming purposes without prejudice to health and without the formation of fog-forming constituents or air-contaminating products."

There is also the question of housing. We hope soon that in this country 378,000 slum houses will be pulled down; nearly half have already been demolished, and we are rebuilding at the rate of 5,000 houses per month. The psychological effect of a good house, well-built, well-drained, well-ventilated, with a bath and plentiful supply of hot water, such as gas undertakings can so easily provide, will make all the difference. We are putting an end to overcrowding by the 1935 Act, and I suggest that in the housing policy of the Government to-day we must let it be seen that we have much to offer. You are all familiar with what has been done so far by the City of Manchester. Withenshawe is the new satellite town being erected by the Manchester Corporation. When complete, it will contain 26,000 houses, and Manchester has determined that it shall be smokeless. Each house is being equipped with gas apparatus for cooking, washing, and space heating.

The General and Parliamentary Committee of the Manchester City Council calculated recently that the 3,085 million cu.ft. of gas consumed in Manchester homes save the City and its suburbs from 21,780 tons of soot per year.

It may be that you will consider I have unduly stressed the health aspect in my Paper. Personally, I think not. There is no subject to-day in which people are more actively interested, and we shall be losing a golden opportunity if we fail to present to this increasingly health-conscious public our Industry—present it, not as some would have it regarded, as a dying industry, not merely as a commercial enterprise, but as an ideal which is contributing to health and happiness in the home.

Discussion.

The CHAIRMAN complimented the Author on his Paper, which, he said, had impressed several vital factors on their minds. As to solid fuel competitors to gas, he would like to say that in his opinion, pulverized fuel was something of a menace to gas consumption. Oil was also a competitor, but the Chancellor of the Exchequer had put a brake on that. The ultimate solution might be complete gasification. The price of coke tended to fall, and because of this they could not, perhaps, expect too much from that. The question of gas charges must be dealt with, he suggested, by methods having regard to individual circumstances and needs. He congratulated the Author on the service he provided at Harrogate. In some districts there was an idea that unless people were doing things by electricity they were behind the times. That was an idea gas salesmen had to dispel. In a town not far from Newcastle an offer was made by the gas company to put in a gas furnace for a crematorium at a cost only half that for an electric furnace. The gas company's offer had been turned down because, he understood, those responsible for the crematorium said they had to consider the feelings of the mourners. Apparently, they would be more pleased by a cremation by electricity than by gas. Yet it took longer to cremate by electricity than by gas.

Mr. T. P. RIDLEY (Newcastle-upon-Tyne) said Mr. Bateman had the right principles as to charging. The flat rate had got to go; but whether the Author had got the right methods was a matter for question. Where there was both a two-part tariff and a block rate, his experience was that where domestic consumers were concerned, the block rate was undoubtedly more attractive. He did not agree with the idea of making a basis of charge the rateable value of a house. It was true that the larger the house, the larger usually was the consumption and in many cases the rateable value would indicate the size of the house; but in others it would not. It had also to be remembered that the rateable value was subject to alteration which was a matter outside the gas manager's control. That difficulty could be got over by going on a number of rooms, while there was a further incentive by offering a summer rate and a winter rate.

Mr. A. E. RUFFHEAD (Darlington) said that it was his opinion that it did not matter for what purpose the gas was ultimately used. At Darlington they had adopted the same basic charge for everybody, and if they used the gas it was on the same basic price. This method considerably simplified price rates. He did not agree with making charges too involved so that they were not readily understandable. There was plenty of that with electricity without starting the same thing in the Gas Industry.

Mr. H. C. SMITH (President of The Institution of Gas Engineers) said he did not think that in the South they looked on coke in quite the same way as they did in the North. They gave as much attention to the manufacture and sale of coke as they did to gas. In the London area, they had their Coke Association, and it had done marvels in the way of stimulating sales and improving the quality of coke. It also helped to stabilize prices so far as merchants and factors were concerned. They realized the benefits of the Association and were standing by it. With the fall in prices and even with oven coke starting to come back, they did not feel they had anything to panic about, and factors were not ready to go over to oven coke when such progress had been made in respect of gas coke. The same could not be said for the coal industry. When demand was high, the industry went out to take all the profit it could and then when things eased off it got cold feet and down came the prices. With the Association, they had been able to keep the position steadier and there was nothing like the panic that there used to be. They did not look forward to complete gasification as perhaps was the case in the North. Towards complete gasification there was a lot of research going on to-day in the Institution and the results were very encouraging. A Paper was to be given at Leeds in due course on research development, in which they would find a quite different conception of complete gasification. That there were possibilities of making gas in the future of a different composition and having no coke for sale was apparent from the research work. He did not think the future would bring complete gasification as they knew it to-day. Was Mr. Bateman's method of charging

to be compulsory? It was going to be difficult where neighbours living in differently rated houses were both using the same gas appliances.

Mr. J. CORRIGAN (Brighouse) said he thought the nature of present day electricity propaganda was something that should be looked into. There was a change in the type of advertising applied to electric cooking, and it seemed to him that the impression might be left from this that food not cooked in an electric cooker had not been properly dealt with. Such an impression might hit at the very basis of the domestic gas load. At Brighouse they had changed from a flat to a compulsory tariff, although that had meant putting up the price. The scheme had been in operation for over three years and the results were most encouraging and the consumption per domestic consumer had gone up. Having regard to electrical competition, it had been proved in their case that the block system had been a success.

Mr. T. HORNBY (Hessle), discussing flat-rate and block methods of charging, said that the important thing to a small undertaking, working to only a small margin of profit above manufacturing costs, was which system ultimately yielded an increased revenue. In a small concern, if it meant a rising consumption at low rates then they might get into a position of having to close down so small was the margin to work on.

Mr. RIDLEY, in reply to this point, said that some time ago he had statistics taken out which showed that although they had sold a good deal more gas at a less average price, it had a higher total value.

Mr. CORRIGAN added that this was also his experience.

The Author's Reply.

Mr. BATEMAN, replying to the discussion, said that the rateable value did not enter into price except for the formation of the block method. His methods were by no means perfect, but at the same time he was working on the lines he had outlined, feeling that they all had to alter their methods of charge and so get a higher consumption per consumer. If they were to get this, then they had to get it from some other industry. Unless they brought their prices down to a competitive basis they were simply wasting their time. Their chief competitor, he suggested, was solid fuel, and they had to get their price down to that level. The block methods were introduced to meet specific cases until such times as they could bring in charges which would meet all circumstances. In Yorkshire they were attempting to work on similar lines to the London Counties Coke Committee. Coke was a most valuable by-product to work off against the price of coal. As to architects, he concluded that some of them found the same difficulties as he had met. He did not know how to shift some architects. A point about small showrooms—it was a good plan where space was limited to have a special display of a single appliance, heating, cooking, water, &c., on each day of the week.

Mr. A. C. HOVEY (London), proposing a vote of thanks to the Author, said that unless tariffs were explained or were readily understandable by the public, they were apt to be dangerous. As it was, the public had complete faith in the Industry and its method of charging, even if it did not always understand it.

Mr. J. W. PALLISTER (Middlesbrough) seconded the vote of thanks, which was carried unanimously.

Midland Junior Gas Association

Annual General Meeting

The Annual General Meeting of the Midland Junior Gas Association was held at the Gas Offices, Birmingham, on Thursday, May 5.

Before commencing the business of the meeting, the PRESIDENT (Mr. E. T. Pickering, B.Sc., A.I.C.) referred to the fact that during the Session two Honorary Members, Sir John Ferguson Bell and Mr. W. Chaney, had died, and members stood in silence for a few moments. Referring to the Annual Report, the President said the activities of the Association had been maintained during the past year and many live discussions had taken place. The Association had honoured itself by electing Mr. R. S. Ramsden (Leamington) and Mr. W. J. Pickering (Birmingham) Honorary Members. Both these gentlemen were founder Members in 1905, Mr. Ramsden being President in 1910-11, and as long ago as 30 years he gave a Paper to the Association. He was President of the Senior Association in the Midlands in 1934, and had always taken great interest in the Juniors. Mr. Pickering had a record which it would be difficult to surpass. He had given a Paper to the Association in 1910; in 1911 to 1915 he was Secretary and Treasurer, and was President in 1920-21. In addition, he was Secretary to the Joint Junior Council for three years from 1919 to 1922. He had always taken a vital interest in the question of education and had represented all the Junior Associations on the Institution Committee since the inception of the Education Scheme.

He congratulated Mr. F. J. Bengough (Birmingham) upon winning the Silver Medal of the Society of British Gas Industries for his Paper on "The Purging of Water Sealed Gasholders."

He also expressed thanks to the Press representatives for the excellent reports they had given the Association.

The adoption of the Report was moved by Mr. F. J. BENGOUGH, seconded by Mr. S. BROCKBANK, and carried.

The adoption of the Statement of Accounts was proposed by Mr. J. H. WAINWRIGHT (Halesowen), seconded by Mr. H. C. WILLS (Birmingham), and carried unanimously.

The PRESIDENT announced that the Council had elected Mr. G. E. Stevenson (Long Eaton) as Junior Vice-President. Mr. STEVENSON, in expressing thanks, said he looked upon his election as a signal honour, and assured the Association that he would endeavour to maintain the high standard set by his predecessors in that position.

A vote of thanks to the retiring members of the Council—Messrs. H. C. Wills (Birmingham), W. Hind (Coventry), and J. H. Wainwright (Halesowen)—was proposed by Mr. F. A. JENKINS (Leamington) and seconded by Mr. W. N. SMIRLES (Birmingham).

In moving a vote of thanks to the Officers, the PRESIDENT paid tribute to the work of Mr. A. Hill, the Honorary Secretary, and to his Assistant, Mr. F. A. Grant; also to the Hon. Treasurer, Mr. G. W. Smith, and Hon. Auditor, Mr. W. P. Timbrell. Mr. A. V. NORTH (Dudley), seconded the vote. It was unanimously resolved that they be re-elected *en bloc*. To fill three vacancies on the Council a ballot took place, and Messrs. H. J. REYNOLDS (Wolverhampton), K. L. PEARCE (Bilston), and D. J. WARD (Birmingham) were duly elected.

A vote of thanks to Messrs. H. R. Hems, F. A. Jenkins, W. McNaughton, and W. L. S. Spinks, who represented the Association on the Education Committee, and Mr. W. J. Pickering, for his work as representative of the Joint Junior Gas Associations on the Executive Committee, was proposed by Mr. A. W. ATTWOOD (Coventry), seconded by Mr. G. E. STEVENSON (Long Eaton), and carried with acclamation. Mr. H. R. HEMS and Mr. W. J. PICKERING responded. The Education representatives were re-elected *en bloc* for the ensuing year.

Manchester and District Juniors

Visit to Rochdale

A meeting of the Manchester and District Junior Gas Association was held on Saturday, May 7, when 100 members accepted the invitation of the Gas Committee to visit the Rochdale Corporation Gas-Works.

After being welcomed by the Chairman (Councillor Ashworth) and the Engineer and Manager (Mr. C. H. Bamber), the members were conducted over the works and the showroom.

The MAYOR OF ROCHDALE (Mrs. Mary Duckworth) presided at tea in the Town Hall.

The PRESIDENT (Mr. Albinson) thanked the Mayor for presiding, and remarked that Rochdale possessed a very fine works.

Mr. BENSON (Bolton) proposed a vote of thanks to the Gas Committee and their Engineer, and stated that in order to obtain the maximum efficiency on the works, combined with low running costs, it was essential that the plant should be controlled by an efficient technical staff. It had been a pleasure to all to inspect such a modern works, and they had also been honoured by the presence of the Lady Mayor.

In seconding the proposition, Mr. BURNET (Blackpool) said that the number of members present was indicative of the way the members appreciated the invitation.

Councillor ASHWORTH responded, and Mr. BAMBER said that the Committee was always anxious that the staff should improve their training and improve their knowledge, and the invitation that had been extended to the Association was indication of that attitude, but also the pleasure it gave to have the goodwill and support of the members, and he was particularly pleased to see evidence of that at the meeting. Mr. Albinson and himself graduated together, and they had kept in touch with each other since then.

A Paper was then read by Mr. R. J. BRADSHAW, Assistant Engineer and Manager of the Rochdale Corporation Gas Department. This will be dealt with subsequently in the "JOURNAL."

MR. R. J. ROGERS

ADDRESSES THE

Midland Junior Gas Association

Annual General Meeting, May 5

As one of the early members of the Association, a Past-President and an Honorary Member, I much appreciate this opportunity of renewing acquaintanceship with many old friends and taking part in your programme this year.

The high standard of technical contributions, which the members of this Association, and other similar organizations throughout the country, have contributed to the Industry, has played no mean part in the development of the Industry in general.

I have noticed in recent years suggestions that another title should be adopted for the Junior Gas Associations throughout the country as there appears to be some objection to the word "junior" being applied to such organizations. I have no suggestions to make concerning an alternative name, and, speaking personally, as an honorary member of the Association, I do not at all object to the term "junior" being used. I hope I shall always remain a "junior" in the sense that we are never too old to learn. Age has no limitation to the acquirement of knowledge; in fact, the riper experience which is only gained by the passage of time enables us to appreciate more fully the true value of the problems with which we are confronted.

I realize that the correct interpretation of present-day trends and future problems is linked up with the past; we cannot, however, dwell in the past, but the knowledge of past events is a most useful experience, and, rightly applied, an excellent guide for future effort.

In considering a subject for my talk to you to-day, I referred to the Presidential Address which I delivered to this Association twenty-seven years ago, with a view to studying the progress which has been made in the various activities with which I dealt in my Address, and to form a basis for a few observations on what I consider to be the future trends of the Industry.

I was reminded that I was the first President of this Association connected with the Commercial or Sales of Gas Section of the Industry, and it is significant to observe that most of the subjects with which I dealt over a quarter of a century ago are still occupying the serious attention of administrators in the Industry. Among the subjects discussed on that occasion were the following:

Meeting Competition.
Junior Associations and the Publicity Movement.
The University and the Gas Industry in the Midlands.
Education of the Gas Fitter.
High-Pressure Distribution.
Illumination—Street Lighting Specifications.
Gas Supply and Pressure.
Town Planning in Relation to Gas Supply.
National Testing Laboratory for the Industry.
Hire Systems and Inclusive Charges to Consumers.
Increasing Consumption and Capacity of Meters.
Gas Undertakings and the Private Trader.
Smoke Abatement.

I have considered, as a matter of interesting comparison, that I might adopt, to some extent, the same subject heads, and discuss them in the light of the present position and trends for the future.

Competition.

During its early life the Gas Industry progressed with little or no competition, but with the advent of electricity it became apparent that in future the Industry could not be considered a monopoly for the supply of light, heat, and power. In my former Address to the Association in 1911 I stated that:

> "Competition in many directions, the application of science in the construction and adaptation of gas-consuming apparatus, together with the multiplicity in types and design of same, have created the necessity of establishing a new department in the Industry, whose duty it is to combat this competition, and to demonstrate in every possible direction the many uses to which gas may be applied. . . . Competition is daily becoming more keen, whether it be for lighting, power, or heating, and there is but little doubt in my mind that this competition will increase in the future.
>
> "I have said, 'We must appreciate the circumstances in which we are placed by our competitors,' and I would emphasize this statement, because it is only by a true conception of our rivals' powers that we may be able to marshal our forces correctly in order to meet this inevitable competition, and to repudiate the erroneous statements often so flippantly made by our rivals and which are calculated to affect our business adversely if we do not take proper steps to refute them."

I think you will all agree that our common experience, in the years which have passed since I made that statement, has shown that competition has steadily grown, and that the Industry *has* marshalled its forces with a view to combating the inroads of our competitors into our business.

There is, however, no room for complacency, and the need for co-operation of all sections of the Industry and the energetic handling of our various problems was never more necessary than it is to-day.

In 1911 gas had the practical monopoly of the cooking field. Electric fires were more or less a novelty, electric water heaters were practically unknown. Gas street lighting predominated, and gas had a large proportion of the domestic lighting. To-day, in 1938, we find in many districts that electric cookers are proving an important competitor for the domestic cooking load. Electric fires have been so improved in appearance and efficiency that they are a serious competitor to the domestic gas fires which we have for sale to the public. Electric water heaters have also been introduced, and in many districts, owing to the incidence of cheap electricity tariffs, are making certain progress.

For street lighting, new types of electric lamps are proving a serious competitor to gas. Domestic lighting has switched over very largely to electric lighting, due in many instances to the use of electricity for all-mains wireless sets. In certain industrial heating operations electricity is now encountered, and electric motors have largely displaced gas engines for power purposes.

Such, in brief, is the position in which we find ourselves to-day in the Gas Industry so far as competition is concerned, and our problem is to decide the best means to be adopted to retain our existing loads and to develop new fields for the consumption of gas. For the successful carrying out of this problem many important phases of our business activities are involved, including various forms of research, design, and development of all types of gas consuming appliances, marketing research, and planned selling, rate structure, and salesmanship in all its aspects.

In considering the question of competition we cannot be unmindful of the wastage of money and effort by both the Electrical and Gas Industries in waging war against each other. It will generally be admitted that each commodity has its particular sphere of usefulness to the community, and I have always held the view that it should be possible to obviate the enormous loss of time and money expended in competing with each other.

Competition, I agree, is beneficial for both Industries, but my view is that certain aspects of uneconomic competition could be abandoned, and there would still be sufficient scope for healthy rivalry between the two Industries.

In this connexion it is interesting to remember that in America, where the two Industries are frequently amalgamated under one financial control, each continues to develop in output to the benefit of the community.

Looking to the future, I consider that, in due time, a more

commonsense view will be taken by both Industries with regard to competition.

Juniors and the Publicity Movement.

The next subject with which I dealt in my former Address was entitled "Junior Associations and the Publicity Movement." This is so closely related to competition that I would now like very briefly to refer to it.

At the time I delivered my Presidential Address, the report of the Joint Publicity Committee, appointed by The Institution of Gas Engineers, had just been published, when it was proposed to form the British Commercial Gas Association for the purpose of bringing the various claims of gas before the public, and for carrying out educative propaganda work throughout the country. I then stated:

> "We must hold in mind the fact that we have no longer a monopoly in the supply of light, heat, and power, and must take steps to see that the public are apprised of the value of the commodity we sell for various purposes. . . . The duty of carrying out the publicity movement is in the hands of a fully representative body of senior members of the profession, but on us, as Juniors, the burden of this duty will ultimately fall; and it behoves all of us, whether engaged in the engineering or the carbonizing section, or in the distribution or commercial branch, to equip ourselves with the knowledge and experience which is best calculated to meet the case."

The progress which has been made by the British Commercial Gas Association since its inception is well known to you all. It is in fact the admiration of many other industries who have, to a large extent, moulded their publicity organizations on that of the B.C.G.A.

To the publicity efforts of the B.C.G.A. have been added the local publicity and sales organizations of gas undertakings throughout the country, and the appliance manufacturers have assisted sales efforts generally, not only by the introduction of greatly improved types of appliances, to which I hope to refer later, but also from a purely sales point of view by the provision of attractive window displays, demonstrations, exhibitions, &c.

I have always held the view that if the utmost good is to be obtained from publicity efforts by the Gas Industry, the work of the B.C.G.A. should be amply supported by local advertising and local effort. In the early days of the B.C.G.A.'s activities I am afraid many undertakings considered that by contributing their quota to the central funds for advertising purposes they need do nothing further. This attitude, I am glad to say, is fast disappearing, and all enlightened gas administrators appreciate the importance of local endeavour by the provision of up-to-date showrooms in shopping centres, equipped with all the latest types of gas consuming appliances. There is no doubt that the Gas Industry must attract the eye of the public, particularly the housewives, in order to bring to their notice the efficient gas appliances available for use in the home.

It must always be remembered that the housewife's purse is limited, and that there are a large number of traders offering attractive articles for purchase, and it is the problem of the Industry to ensure that the housewife's attention is directed to the labour-saving gas appliances which are offered for her use, and to obtain a reasonable share of the money available for the purchase of household articles.

For these reasons I attach considerable importance to window displays and the frequency with which they are changed. There is nothing, to my mind, calculated to demonstrate to the public more clearly the up-to-dateness of a gas undertaking than smartly arranged showroom windows.

It must be borne in mind that a gas undertaking usually selects a position for the showroom in a shopping area, which is as a rule expensive ground to purchase—the main reason being to place the undertaking in full view of the passing crowds—and in my view the capital expenditure on expensive sites is wasted, to some extent, unless the utmost possible use is made of the window space to inform the passers-by of the many up-to-date appliances which are for sale for the use of gas.

The showroom window may be considered to be the index to the efficiency of the undertaking behind the window. The enormous improvement which has taken place in recent years in the design and equipment of gas showrooms is evidence of the progressive spirit of the Industry, and the appreciation of the administrators of the need for displaying appliances in the most attractive manner.

In the future it will be necessary for the Industry to utilize every phase of publicity propaganda of proved value to arrest the attention of, and to educate the community in the many purposes for which gas may be used in home and industry.

As aids to the sales of gas appliances greater use will be made of advertising by more effective displays in exhibitions and in showrooms, by demonstrations of all kinds, by the cinema film, and by the provision of properly trained sales, fittings, and maintenance staffs. Without these aids gas service, in its true sense, cannot be rendered efficiently to the public.

The "Ease" Age.

Henry Ford, who has always thought ahead, says:

> "This generation will live in the greatest era the world has ever seen. Inventions and mechanical improvements will bring leisure with civilization."

We are approaching what may be termed the "ease" age. In the early days of the industrial revolution men, women, and children worked long hours under what we should now consider to be appalling conditions. Since that time invention and education have year by year and era by era gradually developed in the minds of the individual a desire and urge for easement of labour, and a desire for improved comfort conditions, not only during working hours, but also during the so-called leisure period of the day.

In our own lifetime and in our own Industry we have witnessed enormous development in the "ease" with which our own primary products, gas and coke, are produced. The same progress has been made in nearly all other industries.

The Gas Industry has a peculiar interest in this clamour for greater ease on the part of the industrial worker and of the housewife. The "ease" age in Industry will demand for most heat treatment appliances accuracy of temperature and such a degree of scientific control that the process of heat treatment will be practically automatic.

In the domain of domestic gas appliances the apparatus must be designed to appeal to the eye of the housewife. Automatic ignition of gas burners and control by thermostats and clocks are already insisted upon. Above all, these labour-saving appliances should, as far as the ingenuity of manufacturers can devise, be foolproof, and render the utmost possible service to the consumer for the smallest expenditure of gas consumption. Closely allied to this development of greater ease and more leisure time is the problem of the training of the worker to utilize such time to the best advantage.

Welfare work in this direction has always greatly appealed to me, and I consider the study of this phase of human activity should form part of the education of all those in the Industry who are now preparing themselves for holding executive positions in the future.

Education in the Gas Industry.

During my Presidency in 1911 I suggested that arrangements should be made for a course of lectures to be delivered under the joint auspices of the Birmingham University and this Association, and these lectures were eventually delivered by the late Professor Burstall.

In my Address I stated:

> "I am sanguine that the co-operation of the University and the local Gas Industry will lead to the development of the higher education and status of those engaged in the gas profession. The possibilities of development and research that are opened out by the establishment of such a connexion with the University must be patent to you all. . . . The first plank in the programme of the Junior Association should always remain the educational one, and the value of it to its members."

It is unnecessary for me to remind you of the great strides which have taken place in the educational programme of the Gas Industry during the past quarter of a century in Gas Engineering, Gas Technology, Gas Supply, Salesmanship, and Gas Fitting.

The various educational committees of the Industry, as-

sisted by the Board of Education, have done a tremendous amount of most useful work, the value of which to the Industry it is impossible to calculate. In this laudable work the Junior Gas Associations throughout the country have played a worthy part, and I am quite sure will continue to do so.

The Gas Industry of the future demands even a better educated personnel than has been available in the past, and it is of the utmost importance that the greatest possible care should be taken in the recruitment of the right type of persons to the Industry's work.

In my Address in 1911 I stated:

> "There is still something needed to raise the educational status of those engaged in the practical gasfitting trade. It is in this direction wherein lies the most pressing need of the moment. Every effort should be made to expedite the formation of classes or lectures throughout the country, to increase the technical training of the gas fitter."

Although at that time many of the larger gas undertakings had provided technical classes for the benefit of junior gas fitters and fitters' boys, there was no national scheme for the training of the gas fitter, and I suggested that a syllabus and course of instruction should be adopted generally at technical schools throughout the country, leading to the certification of gas fitters. As is well known the Institution with the collaboration of the City and Guilds of London Institute adopted a scheme of training for gas fitters, and I had the privilege for some years of acting as Chief Examiner in Gas Fitting, thereby gaining a good insight as to the qualifications and ability of the gas fitters who presented themselves at the various centres in the country for examination.

The Birmingham Gas Department has always been a leader in the technical training of gas fitters, and my experience, both on the supply side and that in recent years as a manufacturer of appliances, has indicated to me beyond any doubt that money expended in the training of gas fitters is money well spent, and further that the service rendered by the Gas Industry to the consuming public cannot be properly achieved unless the men who have to fit and maintain appliances in consumers' premises are fully trained, and have a complete knowledge of the various types of gas-consuming appliances with which they have to deal to-day.

Research.

In my Address to this Association in 1911 I referred to the subject of appliance testing laboratories. I suggested that standard conditions of testing certain apparatus might be decided upon by a suitable committee, and that research work might be undertaken and the results published for the information and guidance of members of the Industry.

In November last, in my S.G.B.I. Address, I referred to the need for pooling of research and to the work which was being carried out in the laboratories of the principal appliance manufacturers and in many of the larger gas undertakings. I would refer those of you who are particularly interested in research to my observations on the subject in my recent Address.

In modern times it is recognized that no industry can ensure its permanent progress and advancement without the prosecution of research. There is a great deal of confusion as to what is meant by research. The technical work of any industry can be divided into about three sections. There is the day-to-day solution of problems as they arise. Such problems are met with by both appliance makers and the gas undertakings. Their point of view may be different, but their problems are often the same.

There is also a second type of technical work which can be put under the heading of development. This consists in adapting already well-known technique to further and other uses. This is of especial interest to the contractual side, but the gas undertakings obtain the advantage of any successful developments. But all such work depends for its precision and accuracy on the extent to which physical and chemical phenomena are thoroughly understood and applied.

The third division that I would indicate consists of technical work, sometimes confusedly called fundamental work, which may have for its object the determination of basic facts on which all other work depends, and which may also be allied to the prosecution of a type of research often called "Long Distance Research" in unexplored fields, which is not likely to be applied owing to lack of advancement and development for a period of years. This is the type of research which individual gas undertakings and individual contractors as such rarely find it practicable for financial reasons to undertake. The results can have no connexion with proprietary goods or processes, nor be the subject of patents, but they form the very basis of all development, and are of such general application and such wide interest that in many other industries that type of work is undertaken on a co-operative basis by the industries as a whole.

I am of the opinion that if our own Industry is desirous of permanently holding its own, such a type of basic research must not be neglected.

The Need for Standardization.

In 1911 I suggested the question of standardization of many gas-consuming appliances might be considered. I will not repeat here what I said in my recent S.B.G.I. Address on the subject of standardization, but once again I would emphasize the importance of this factor upon officials responsible for the purchase of appliances.

The constant varied demands made upon manufacturers for alterations or amendments to the standard specification, frequently of minor character not calculated to improve the service to the consumer, can only increase the manufacturers' cost.

It is perhaps unnecessary for me to point out the very valuable services rendered by contractors and manufacturers to the Gas Industry and the importance of the closest collaboration being maintained between the supply undertakings and the manufacturer.

Street Lighting.

Street Lighting Specifications was a subject with which I dealt in my former Address. At that time in 1911 I pointed out that a special Committee appointed by the Illuminating Engineering Society, with whom were co-operating the Institution of Electrical Engineers and The Institution of Gas Engineers, was engaged in framing a standard specification for street lighting.

During the past quarter of a century there have been important developments in the efficiency of gas as a street illuminant, and various specifications have, from time to time, been prepared. These specifications adopted minimum illumination as a basis of comparison of lighting installation, but the latest Report of the Ministry of Transport Departmental Committee has recommended "lumen output" as the criterion of lamp performance. This has met with a very mixed reception, especially in the Gas Industry, it being generally considered that the illumination effect on the carriageway by lighting units is of more importance than the amount of light used to produce that illumination.

The importance of distribution of light is, however, recognized in this Report, which is being implemented by the British Standard Institution Committee on Street Lighting.

In the past year, during my Chairmanship of the Society of British Gas Industries, I have endeavoured to focus attention on the importance of retaining the street lighting load, and in my Address to the Society in November last I pointed out that gas provides over two-thirds of the street lighting in this country, and that in many undertakings it represents from 5 to 7% of the total output of gas.

Such a load is well worth retaining, and if lost will necessitate a great effort and expenditure of money to make up this debit in gas consumption. While I fully realize the difficulties which beset the administrators of gas undertakings in many towns, in maintaining this street lighting load, particularly where the electrical interests are in the control of the local authority, I hold the opinion that more could be done in many areas in providing installations of up-to-date gas lighting systems.

With a view to the subject of gas street lighting being considered in all its aspects by the Industry, the Joint Lighting Committee of The Institution of Gas Engineers has suggested that the various district Gas Associations should convene meetings to study the problem, so far as it affects their own particular district, and formulate a policy for the future conduct of the Street Lighting business in their area. I trust

such meetings will lead to an increasing amount of interest being focused on the development of gas for street lighting.

What the S.B.G.I. is Doing for the Industry.

As Chairman of the Society of British Gas Industries you will no doubt expect me to say a few words regarding the work of that organization. The extent to which the members of the S.B.G.I. are associated with the Gas Industry was fully dealt with in my Address to the members of the Society in November last, when I outlined the wide range of interests represented by the various sections of the Society. I should, however, like to take this opportunity of intimating very briefly the extent to which the S.B.G.I. and its members are contributing to the corporate activities of the Gas Industry, and in support of the general propaganda work of the Industry.

British Gas Federation.—The Society contributes on the average an annual sum of about *£100* towards the administrative expenses involved in the conduct of the Federation's affairs, and in meeting the deficit on the Federation Banquet.

British Commercial Gas Association.—The Society contributes *£2,000* annually to the funds of the B.C.G.A.

British Refractories Research Association.—The manufacturers contribute about *£2,500* annually to the funds of the British Refractories Research Association.

Empire Exhibition, Glasgow, 1938.—The Society has contributed a sum of *£500* towards the cost of the Empire Exhibition, Glasgow, in addition to promising to loan appliances for display.

British Industries Fair, Birmingham.—The Society contributes on the average a sum of *£500* towards the cost of the Central Information Bureau and the Industrial Gas Exhibit. The Society's members annually provide the exhibits comprising the Gas Industry Section, involving them in a direct total annual expenditure of not less than *£25,000,* to which must be added considerable indirect expenditure, incidental to the Exhibit. The B.I.F. is supported at the request of the Undertakings, on the grounds that the prestige of the Industry is involved. Virtually the entire cost is borne by the contractors and manufacturers.

Ideal Home Exhibition, London.—The Society's members who exhibit at the Ideal Home Exhibition incur a total annual expenditure of not less than *£12,500,* to which must be added considerable indirect expenditure incidental to the Exhibition.

Proposed National Gas Exhibit, South Kensington Science Museum.—The Society has undertaken on behalf of its members that their total contribution shall be not less than *£5,000.*

Research and Development Work.—The bulk of the business of the contractors and manufacturers is conducted in a spirit of keen competition, and the Industry benefits materially from this competitive spirit in that each company strives to improve its products in such a manner as to make them in every way competitively more attractive both to the Industry and to the general public. This involves a large internal expenditure of money on research and development.

National Exhibitions.—The Industry benefits very materially from the National Exhibitions at which gas is annually represented, and by far the greater preponderance of the cost of these exhibitions falls on the members of the Society. Of the 185 firms in the Society 110 firms have declared their annual expenditure under this heading to be *£85,000.* The total for all the Society's members must therefore be considerably in excess of this figure annually.

Advertising and General Propaganda.—It is a vital necessity for every great national industry to have a strong and virile internal Press, and it is common knowledge that the Technical Press depends almost solely for its existence on the advertising support of the Society's members.

Some of the Society's members in addition to supporting the Technical Press, advertise also in the Lay Press, and thus help to keep the case for gas before the notice of the general public.

In addition to their advertising expenditure the Society's members are called upon to undertake a very heavy annual expenditure on local exhibitions, showroom displays, supplying canvassers and demonstrators, propaganda literature, and so on in support of the efforts of every gas undertaking in the country.

While it may be said that this expenditure is only a reasonable sales expense, the cumulative result of it is a vital factor in furthering the sales of gas, and the burden of it, if it were not carried by the manufacturers, would inevitably fall on the gas undertakings. Of the 185 firms in the Society 110 firms have declared their annual expenditure under these and kindred headings to be £325,000 annually. The total for all the Society's members must therefore be considerably in excess of this figure annually.

Gas Service.

It is becoming more generally appreciated that the future of gas depends upon service to the consumer. I stated in my recent Address to the S.B.G.I. that the slogan "Service to the Consumer" had been very widely adopted, but in many instances I feared without a full realization of all it demands. There is not a phase of any departmental activity in our Industry, be it manufacture, laboratory, distribution, or sales, but that the "service to the consumer" is, or should be, the paramount consideration.

Many of you are intimately associated with the chemical and carbonizing departments of the Industry, and of such I would ask your consideration of the advances which are likely to be made in the fuel itself. There is no doubt that the most urgently-felt want is a reduction in the amount of sulphur which at present has a very serious limitation in several directions—viz.:

(1) The use of flueless appliances, except where the consumption is very small, which is liable to give a perceptible smell of sulphur oxides.

(2) The corrosion of non-condensing water-heating appliances, resulting in deposits which are unsightly, and require to be removed at intervals.

(3) The deterioration of all components such as hotplate bars which come under the action of the products of combustion. There is little doubt that the life of these parts would be greatly lengthened by the reduction of the sulphur content in the gas.

(4) The effect of sulphur content on the metallic radiants of gas fires, the development of which has been pioneered by the firm with which I am now associated.

With regard to the design of appliances themselves, there are several directions in which we are likely to see appreciable advances; for example, there is a growing indication that efforts are being made both on the part of the gas undertakings and gas appliance makers, to ensure that the consumer obtains a performance as near as possible to the optimum, which hitherto has only been obtained in the laboratory.

Trend in gas cooker design will be for the straight line type with easily cleaned surfaces, such as the cookers which have been pioneered by the Company with which I am now associated. In 1932 the Parkinson Stove Company introduced the straight line "Birma" cooker to the Industry. This was followed in 1933 by the "Minette" cooker incorporating a folding cover on the hotplate. In 1934 the "R.A." cooker was developed by Parkinsons in collaboration with Mrs. Darcy Braddell, and displayed in the Art in Industry Exhibition at the Royal Academy in January, 1935. It was adopted for use in the house which the Royal Warrant Holders presented to His late Majesty King George V.

Since then the "Renown" cooker has been developed, and I think I can rightly claim has set the fashion for future gas cooker design.

In the heating field there is a tendency for simple lines of design, and in my opinion future requirements will demand gas heating units with more substantial forms of radiants. If the Industry is to replace the coal fire for general use, it is, I consider desirable that gas fires should be designed which will give a much wider distribution of heat than those generally in use to-day which are now fitted with straight radiants giving more or less a frontal heating effect.

As is well known, certain makers have, for some years past, marketed fires giving a wider distribution of radiant heat. Over 20 years ago, Messrs. Lewis, Marsh, and myself designed a gas fire giving a certain proportion of convection as well as radiant heat, and I consider the gas fire of the future will be one which will give not only a wider distribution of

radiant heat but also a modicum of convection, and which can be fitted into the normal recess of a coal fire grate opening.

Holding Companies and Gas Service.

When speaking of high-pressure distribution in 1911, I said:

> "The question of amalgamating the smaller gas-works within a limited area, with a view to concentrating the production of gas at one works, is one which is worthy of consideration in many districts when a study of a map is made, and holding in view the possibilities of modern gas transmission. Ere long we may see linked up to our towns and cities, by means of gaslighted roads, many villages, the consumption of gas in which would prove remunerative to the Gas Undertakings and a boon to the inhabitants and public at large."

As you are all aware there has been in recent years a somewhat rapid development of Holding Companies leading to the acquisition of a large number of Companies, whose activities, to a large extent, are now being controlled from a central organization. Although in many instances it would appear that acquisitions have been somewhat haphazard, I think we may anticipate that, in the future, greater attention will be paid to the geographical grouping of undertakings, in order that the maximum economic advantage may be derived by the Holding Companies, and the utmost possible service rendered to the consumers of gas.

It is not my purpose to discuss this important aspect of administration of group companies, beyond saying that, in my opinion, greatly improved service to gas consumers will be provided in many undertakings by reason of the increased financial, technical, and administrative facilities which are now available from the centralized organizations of various holding companies.

Water Heating and Central Heating.

One of the most prolific fields for the development of new consumption is that of providing hot water for all domestic purposes and for central heating boilers. Manufacturers have marketed for the use of the gas supply undertakings suitably designed and efficient types of water heater to meet the demand of all classes of the public for hot water service.

If the optimum gas sales for water heating apparatus are to be obtained, it is necessary that every gas undertaking should have suitably trained personnel to ensure that gas consumers receive the correct advice and the most suitable type of apparatus to meet the particular requirements of each household.

Several manufacturers of water heating appliances have published informative manuals for the guidance of salesmen and fitters, and are thus contributing to the education of those responsible for dealing with this branch of gas service.

There appears to have been engendered an idea in the minds of many gas salesmen that the instantaneous type of gas heated water apparatus should be advocated on all occasions and for all purposes. This idea, in my opinion, is an erroneous one, as circumstances in many households demand a storage system of hot water, and it should be the duty of the advisory expert to guide the consumer as to the most suitable type of apparatus to install, having regard to all the particular circumstances.

The system of central heating in residential premises is becoming more widely appreciated, especially by persons who have experienced the comfort of living in a house equipped with centrally heated radiators. The saving of storage space, the absence of ashes, and the more precise method of thermostatic control, which are possible where gas heated boilers are used, have a strong appeal to the householder.

The future development of gas sales for water heating and central heating will, to a large extent, depend upon the tariffs framed by gas undertakings. This subject is one which is rightly receiving the very serious attention of the Industry, and although no generally universal tariff may be adopted for the whole country, there is a growing realization of the need for variation in the existing tariffs, and I look forward to the time when it will be economically possible for the householder to use gas universally in the home for heating, cooking, and the provision of hot water.

Notwithstanding the competition with which the Industry is faced, we can look forward to the future with reasoned confidence. Without confidence there can be no real progress either in a nation, an industry, or an individual. A good deal of the present recession in trade is traceable to a lack of confidence.

The Gas Industry is the world's most useful industry, and as workers in that Industry we have each, in our respective offices, ample scope and opportunity for rendering effective service to the community.

I am quite sure the Junior Gas Associations have in the past rendered most useful service in the training of the younger members of the Industry, thereby enabling them to undertake responsible work in various branches. In conclusion, may I express the hope that the activities of this Midland Junior Gas Association will continue in the vigorous manner which has characterized its past and wish you all continued prosperity and happiness in the future.

Vote of Thanks.

At the conclusion of the Address, the PRESIDENT (Mr. E. T. Pickering, B.Sc., A.I.C., Birmingham) said how much the members appreciated that so busy a man should have found time to address them. When they remembered what Mr. Rogers had told his audience twenty-seven years ago, they realized how far-seeing he was. He was particularly interested in Mr. Rogers' remarks regarding the S.B.G.I. While they were all members of individual gas undertakings, they must not forget that they were also members of what was a closely unified Industry.

Dr. C. M. WALTER (Engineer-in-Charge of the Industrial Research Laboratories, Birmingham), in proposing a vote of thanks to Mr. Rogers, said they were very pleased to have him with them. He was an old friend, a past Member of the Staff of the Birmingham Gas Department, and an honorary Member of the Midland Association. It was interesting to see how the pointers he gave many years ago had developed on the lines he then suggested. His Address covered a wide field, all of which was of interest to the members. A point upon which he would have liked to have heard more was the question of competition with electricity. He had been of the opinion for some time past that electricity should not be regarded in the light of a competitor. Although to a degree it had to be regarded as such, he thought it should be borne in mind that both gas and electricity were complementary to the public service. There was an enormous field for development of both industries and much research work to be done by both sides, and in his opinion the sooner the unhealthy competition was done away with the better it would be for both industries.

Commenting upon Mr. Rogers' remarks regarding education, he said he had seen the Education Scheme mature, and thought that the time would come when the Industry would be in closer touch with the Universities. He appreciated the excellent work done by manufacturers in regard to gas fires, and thought that the future gas fire would combine radiation and convection to a greater extent than had been done in the past. He hoped that the Association would have other opportunities of hearing Mr. Rogers.

Mr. W. J. PICKERING (Birmingham), in seconding the vote of thanks, said that Mr. Rogers was always in the van of any effort for progress in the Industry. He said he would like to stress particularly what Mr. Rogers had said regarding the furtherance of research and educative effort, and hoped that the members would take his remarks to heart.

Mr. ROGERS, in reply, said what a real pleasure it had been to come among old friends again. Referring to the diverse character of his Address, he said he had done this deliberately. The composition of the Association was diverse in character, and he wanted his talk to appeal, as far as possible, to the largest number of members. He pleaded guilty to dealing with his subjects in a rather sketchy way, as many of them were worthy of a Paper in themselves, and he was sure that all of them deserved the serious consideration of members of the Industry whether they called themselves Juniors or Seniors. He felt that the Engineers of the future must have a different outlook from those Juniors who were training as engineers in his early days, as the present Junior must include subjects dealing with administration and the sales side of the Industry. It was not possible for all young engineers who were in training to look forward to being appointed as engineers of large undertakings, and they would find that in the smaller works the engineer was the head of his particular undertaking and required more administrative and sales knowledge than it was necessary for him to possess in the past.

Gas Water Heaters

ASPECTS OF THEIR TESTING AND SOME DISTRICT PROBLEMS

From a Paper presented to the Yorkshire Junior Gas Association at Leeds on April 23.

by
G. MURRAY, B.Sc.,
of the Sheffield Gas Company.

Considering heaters of the storage type, the desirable characteristics might be stated as follows:

(1) Design for easy maintenance.
(2) Good combustion characteristics.
(3) Good thermal efficiency over varying gas rates.
(4) Good mechanical construction.
(5) Capable of easy fitting.
(6) Thermostat design to be of such a nature as to reduce lag and overlap losses to a minimum.
(7) Good overload characteristics.
(8) Good appearance.
(9) Good high temperature "draw-off."

Like the storage heaters, circulators have to be designed to operate efficiently at varying gas rates. Probably the greatest losses in a hot water supply system occur during the period when the circulator is on maintenance consumption. The desirable characteristics for the appliance are thus very similar to those above and need not be reiterated.

In the case of instantaneous heaters of all types it will be realized that these operate at a constant gas rate. The question of design in relation to the thermal efficiency at different gas rates does not therefore arise. The desirable characteristics of this type of heater can thus be stated as follows:

(1) Good facilities for quick and easy maintenance.
(2) High thermal efficiency and good overload characteristics.
(3) Automatic valves, &c., to be of good design on sound engineering lines with friction and other mechanical losses reduced to a minimum.
(4) Sound mechanical construction.
(5) Capable of easy fitting.
(6) Good appearance.
(7) Appliance to be capable of operating under normal conditions of water pressure, gas pressure, &c.

The efficiency of modern appliances can be maintained quite easily if they are rendered non-condensing. There is a present tendency to make all gas appliances non-condensing. This is, in the writer's view, to be recommended. By suitable design the efficiency can be maintained. Installation costs are reduced as no condensation pipe has to be run, and corrosion problems are considerably eased, as there is no water in the liquid phase to give solutions of acids. The appliances can be cleaned much more quickly and easily, and maintenance costs are reduced.

All manufacturers are, of course, aiming at an ideal state of affairs in their heaters to incorporate all the above desirable points. Several of them, however, are paradoxical, and it must be realized that the appliances have to be made down to a price in order that they will sell. It is the writer's opinion that the efforts of the manufacturers to reach perfection should receive greater encouragement from the Gas Industry, and greater help in their designs. If there is anyone here who has attempted to design automatic valves, or tried to set out a heater on a drawing board incorporating the characteristics mentioned above, I think he will have greater appreciation of the thought and effort behind heaters which we are inclined to condemn on account of some slight defect.

There is such a large number of different makes of heater at present on the market that the question of standardization immediately springs to the mind. In view, however, of the disastrous results which have attended efforts at standardization on other appliances, and the remarks of Mr. Rogers at the last meeting of the Society of British Gas Industries, any standardization would, I think, lead to a certain arresting of progress and place limitations on the ingenuity of designers.

A gas undertaking has, however, to sell appliances which are suitable to the particular area of supply. This becomes somewhat difficult with the large number of makes of the same type of appliance on the market. The only method available is the testing by each undertaking of the individual appliances.

With a view to obtaining a certain uniformity in the tests by different undertakings, and to set out a standard, at least in certain aspects, of the performance of these water heaters, it is suggested that there should be a schedule and method of testing of all gas water heaters. We have a number of British Standard Specifications giving the methods of test and permissible limits of performance of ancillary parts to heaters. Another complete specification for water heaters (1) for instantaneous type, and (2) for storage type and circulator is desirable.

A schedule and specification suitable for the duties required of gas water heaters should have reference to, and give particulars of, the following points:

Instantaneous Water Heaters.

Capacity.—This will require to be given with the water rate and different temperature rises.

Connexions.—Dimensions of cold water unions. Dimensions of hot water unions. Dimensions of condensation union (if any). Dimensions of flue pipe (if any). Any other relevant information for fixing.

Type of Draught Diverter (if any).—The present tendency is to incorporate draught diverters with the appliance. This procedure is to be heartily recommended, particularly in view of recent published information, as the characteristics for each appliance vary. Draught diverters if incorporated should conform to the British Standard Specification.

Combustion.—The combustion of the gas in the appliance should be complete. Especially is this necessary in the case of small sink heaters. Overloads in gas pressures should not so affect the combustion as to make the appliance dangerous. By conforming to the British Standard Specifications, the suitability of the appliance would be assured.

Weight.—This is quite an important point and the appliance should be weighed empty and full. Due reference should be made as to the fixing methods adopted in relation to the weight of the appliance.

Gas Consumption.—The mean of a number of tests of the maximum gas consumption should be taken. This should be referred to the size of flue pipe, if any, employed. For all consumptions over 75 cu.ft. per hour a flue is necessary, and its dimensions should be such as to take the products of combustion away satisfactorily. (In cases where small appliances consuming up to 75 cu.ft. per hour are used continuously a flue pipe is necessary.) A great deal of harm can be done to instantaneous heaters when overloaded. A governor is desirable and should, it is suggested, be fixed as a standard fitment incorporated in the appliance.

Thermal Efficiency.—It is important to have at least a fairly high thermal efficiency. In the past probably too great a stress has been laid on the question of thermal efficiency. It is suggested, however, that in the case of instantaneous heaters it should not be below 70%, otherwise the actual service efficiency will be reduced. There will, of course, be a variation of the thermal efficiency

with the outlet temperature of the water. It is useful, therefore, in carrying out a series of tests to give results for various temperature rises.

Operating Head.—The question of water pressure and head of water to operate the automatic valves of instantaneous heaters is a vexed one. Frequently difficulty is experienced in installation due to lack of head, and a schedule of tests would not be complete without this test being made. By means of valves and a mercury gauge the head sufficient to operate the gas valve when the head is increasing is recorded, and the same observations taken with the head decreasing. These will not be found to give the same results due to friction and mechanical losses, and the difference between the two curves constructed from this data will give the mechanical losses in the valve. At the same time, observations should be made on the gas consumption. It is suggested that it is not sufficient for an automatic valve to work at a low head, but that it is necessary that the mechanical friction losses should also be low, otherwise trouble may be experienced with "binding" and other attendant evils. The provision of water governors on instantaneous water heaters is desirable and their provision eliminates many of the problems associated with varying water pressures. The use of these devices has only become general during the last six months, and it seems incomprehensible to the writer why they have not been adopted before as standard equipment.

Valves.—There have been several attempts in the past to design a valve of all-metal construction. Some sort of flexible connexion has to be made between the gas and water sections, and it must be agreed that the all-metal valve has much to recommend it from that point of view. In general, however, it has been the writer's experience that corrosion very quickly sets in and/or particles of grit soon cause trouble with friction effects and sticking of valves. The result of this has been to resort to some form of rubber flexible connexion and small glands. The use of rubber is satisfactory provided the valve is completely surrounded by water so that should any burst or fracture of the rubber occur the gas will shut off. In valve designs, however, where seals between gas/air and water/air are made by means of rubber, trouble occurs due to oxidation and cracking of the rubber substance. Manufacturers should pay more attention to this most important point, and to the use of stainless steel and other non-corrodible and friction reducing alloys. The use of inferential valves operating on the venturi principle has become very common, and owing to the smooth working obtained has everything to recommend it. It would seem, however, that development of an automatic valve using strong permanent magnets so that there would be no glands, or other mechanical connexions to introduce friction between gas and water, is worthy of further consideration.

General Construction.—Any unique points in the design of the heater under test should be mentioned and their efficiency in the design investigated. The gauge of materials used and methods of preventing corrosion in the gas and water ways, special metallic coatings, &c., should be tested.

Service Tests.—The conditions under which heaters have to operate on consumers' premises vary a great deal. Heaters are subjected to a good deal of abuse, and as the ultimate aim of any set of tests is to ascertain the probable life and behaviour of the appliance on the district the heater should be subjected to a service test. A period test of at least six months' duration is suggested, with 24 hours' use. It will then be possible to find the probable maintenance charges on the district. Periodical operation of the inlet automatic valve on the appliance by means of a mechanically controlled water valve is necessary in order that service conditions may as far as possible be reproduced in the laboratory. If possible, the automatic valve should be tested to destruction and an estimate made of its life.

Maintenance.—Instantaneous heaters work at high gas rates and the problems of corrosion and general wear and tear are intensified. Adequate facilities must be given for easy and complete dismantling of the heater. Heaters should be capable of being cleaned and adjusted by semi-skilled operatives, and should be designed to that end. It is the writer's opinion that the design should be such that the heater can be cleaned, dismantled, and reassembled in three-quarters of an hour. Instantaneous heaters must have regular maintenance on the district, and gas undertakings should realize this. The sale of water heaters of all types should be synonymous with a maintenance scheme, and a regular visitation every six months is suggested as the most suitable period. A properly organized scheme will easily repay any money which may be spent on it.

Storage Type Heaters and Circulators.

It is difficult to get a storage heater to operate efficiently over a wide range of gas consumptions, and the low thermal efficiency occurring under service conditions is in most cases due to the very serious reduction in efficiency on maintenance, and low consumption. Having due regard to these various points, a schedule of testing would be similar to that above for the instantaneous heaters, but there would be some additions and modifications. Such points are given in the schedule below.

Capacity.—This would be given (i.) as the storage capacity of the heater (does not apply to circulators): (ii.) as the quantity of hot water obtainable (the rate of heating the water in the case of circulators).

Connexions.—These would be made as in the previous schedule.

Draught Diverter.—The same specification and necessity for its incorporation in the appliance as in the previous schedule would apply.

Combustion.—The same combustion standards as in the previous schedule would apply.

Weight.—For the same reason as with instantaneous heaters, the weight of the appliance is necessary to complete the schedule.

Gas Consumption.—(i.) The maximum gas consumption should be taken over a series of tests and the mean maximum taken. (ii.) The maintenance gas consumption should also be taken. In the case of storage heaters, care should be exercized to see that steady conditions are attained. The appliance should be allowed to reach equilibrium after about 12 hours on maintenance rate. The room where the test is carried out is kept as far as possible at a constant temperature of 60° F. The heater is kept on maintenance gas rate for three days, due consideration being allowed for variation of barometric pressure and temperature of the water, readings being taken and the meter reading corrected to N.T.P. With circulators the maintenance consumption will depend on the type of system to which the appliance is fixed. The gas rate to maintain stable flames in the case of bunsen and semi-bunsen burners should be recorded. The stable flames on luminous burners and bunsen type burners will, of course, be connected with the efficient operation of the Draught Diverter. Although the price of the appliance is increased, the incorporation of governors in its design should be standard.

Time to Heat Up.—This will depend to a great extent on the cold water inlet temperature. The time to heat up—either a storage heater or circulator on the standard system—should be found for purposes of record.

Thermal Efficiency.—This would be obtained by taking the gas consumption over a period until the maintenance gas rate is reached. At this point the gas is turned off and the hot water obtained from the storage heaters, or hot water system in the case of a circulator, by displacement by cold water. The amount of water and temperature taken are noted and the water is withdrawn until the outlet temperature is the same as the inlet cold water temperature to the appliance. It is, of course, essential that the water flowing into the appliance or system shall reach equilibrium temperature so that the outlet temperature is the same as the inlet cold when the appliance is filled with cold water before the test is commenced. The design of a heater should be such that the maximum quantity of water at the maximum temperature is obtainable. It is suggested that a standard should be set with all types of storage heaters, such that

60% of the hot water obtained from the heater should be at thermostat temperature. If this is not so, the design should be so modified as to prevent mixing with the cold inlet water. A figure of 65% as a minimum is suggested for the thermal efficiency for storage heaters. With circulators the efficiency will be determined by the type of hot water system. An efficiency of 65% is suggested as a standard for circulators.

Operation of Thermostat.—During the period of taking the thermal efficiency, observations are made of the gas rate. Curves are then made of the series of tests. The efficiency and the time of heating will be to a great extent dependent on the type of thermostat. To get good operation it should, of course, be made as "snap" action as possible.

General Construction.—The design of the heater is carefully examined and the efficacy of unique points tested out. Methods of preventing condensation, if adopted, should be tested to make sure that they are effective.

Service Test.—Remarks in the previous schedule apply to this for storage heaters. The heaters should be tested for a period of six months and the heater operated intermittently as far as possible to simulate service conditions. Quantities of water down to the cold water temperature are drawn off at regular times during the day and the heater is left on for 24 hours continuously. The operation of the heater over the period is noted and any defects are carefully observed.

Maintenance.—Facilities for maintenance should be noted in the schedule. Small sink heaters should be capable of being cleaned and maintained in three-quarters of an hour. This should include cleaning the combustion chamber and waterways. From the previous service test the frequency of cleaning can be estimated. A maintenance period of six months as in the case of instantaneous heaters is suggested. Circulators should be capable of being easily taken to pieces and cleaned through. Suitable provision in the design should be made for easy access to the waterways to enable these to be cleaned out in hard water districts.

In the thermal efficiency tests in both the schedules, and particularly in the storage heater tests, the water would be corrected for temperature down to a constant—4° C. Gas consumption would also be corrected for temperature and pressure. With the maintenance and extended tests, averages would be taken of periodic readings.

There is a great responsibility in a gas undertaking adopting a certain type of gas appliance, not only to that undertaking's own consumers, but also to the Gas Industry as a whole. I feel, therefore, that too much stress cannot be laid on complete and thorough tests before any appliance is put into the showrooms.

It may be thought that some of the remarks in the above schedules are too academic for practical application, but from some bitter experiences of faults developed in newly installed appliances it is the writer's firm conviction that tests on the lines mentioned above are necessary. If any particular fault is found with an appliance under these tests, the logical thing to do is not, of course, to condemn the appliance, but to co-operate with the manufacturers in modifying it to prevent the trouble, to the mutual advantage of the Gas Industry and the manufacturer.

A testing department can then become a most useful asset to the Industry in general and the gas undertaking in particular.

When we have a heater which has passed the above tests, our duty then is to see that the installation is satisfactory.

Discussion.

The PRESIDENT (Mr. J. Richmond, York) emphasized the importance of the water heating load.

Mr. DAVID C. HENDERSON (Bradford) remarked that Mr. Murray stated the desirable minimum thermal efficiency of instantaneous water heaters and circulators as 70% and 60% respectively, and he would be interested to know what the Author considered a fair average efficiency should be.

Mr. MURRAY said there must be considerable variation between bench test efficiencies and average service conditions—75% to 80% on bench, and as low as 65% on service in the case of instantaneous heaters, and 60% and 50% in the case of storage heaters.

Mr. ANDERTON (Batley) remarked that his own experience with storage heaters indicated that many householders had some difficulty in keeping up with the running cost. He wondered whether Mr. Murray could give any information which might help in solving this question of running costs for such installations.

Mr. MURRAY said he was afraid he was not in a position to discuss relative running costs in a general way. If the whole system were lagged the costs were reduced substantially. At the same time, while he regarded storage heaters as one of the best methods of hot water supply, one had to pay for the service.

Mr. F. BEAUMONT (Huddersfield) suggested the desirability of a central testing laboratory for supplying information on water heaters. Not every undertaking was in a position to undertake the full tests advocated in Mr. Murray's Paper.

Mr. MURRAY agreed that a central testing laboratory could furnish much useful technical detail to all undertakings, but these results must even then be applied to the local working conditions of the separate undertakings, including differences in water hardness, differences in water pressure, and so on. In these circumstances, he suggested, some sort of test must be carried out by each undertaking, even though the cost might be an item.

Mr. HENDERSON (Bradford) asked if Mr. Murray could give any indication of the efficiency of bottom flue outlet as against top flue outlet in a circulator.

Mr. MURRAY replied that it was a question of design. One could be as efficient as the other if operating on an appropriate design.

Mr. J. W. CARLTON (Shipley) noted that Mr. Murray favoured the storage heater as the best method, but admitted that it must be paid for. Mr. Carlton's own feeling was that, in general, the instantaneous heater was the more economical and satisfactory method because it avoided a good deal of gas wastage.

Mr. MURRAY, replying, suggested that the relative value of installing storage or instantaneous heaters was governed by local conditions rather than by comparisons on test. In the case of a household with no fireback boiler and the kind of house which the builder had to sell down to a price, he would regard the instantaneous heater as the better system. On the other hand, there were cases where the storage type was obviously the better. If the kitchen of a house was a long way from the bathroom there might be a costly loss of heat in transmission, and in such a case the loss could be avoided by the installation of two single-point instantaneous heaters—one at the bath and one at the kitchen sink—instead of one multi-point heater in the kitchen.

Mr. CARLTON observed that a strong selling point for the instantaneous heater was that it enabled them to offer something which electricity could not offer.

Mr. J. CROFT (Dewsbury) asked Mr. Murray what he would consider the very lowest head of water pressure required to make the multi-point heater work satisfactorily. In many new houses the head of water was very limited, and the gas appliances were liable to be blamed for lack of service efficiency due in reality to inadequate water pressure.

Mr. MURRAY said that the figure to which he usually worked was 10 to 12 ft.

The PRESIDENT asked whether, in cases where there were fireback boilers, Mr. Murray would consider the linking-up of a storage heater with the fireback boiler, or would he prefer to install an instantaneous heater.

Mr. MURRAY thought that one of the best methods was to use an instantaneous heater with suitable valves incorporated to get the service when the fireback boiler was not working.

Mr. J. W. HOLROYD (Rotherham) said he could not imagine that the installation of an instantaneous heater could possibly satisfy people accustomed to the large volume of thoroughly hot water held in store by the fireback boiler.

Mr. MURRAY said that would always be a matter of controversy. His own feeling was that the instantaneous heater could be used satisfactorily with the fireback boiler.

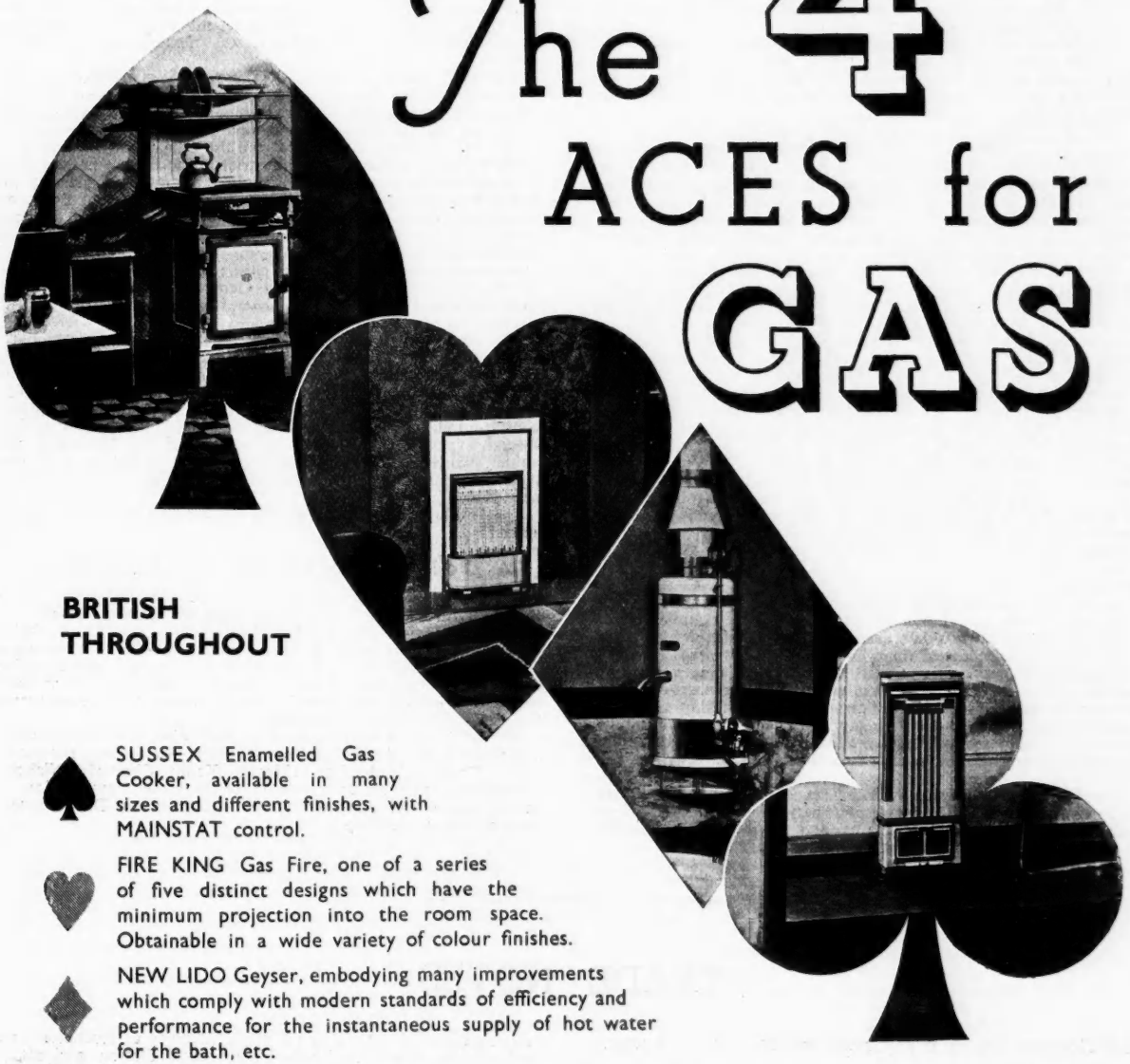
Mr. J. B. ARMSTRONG (Leeds) said that in an area having some thousands of small storage heaters he found the biggest trouble was not so much the matter of maintenance costs of the apparatus as complaint about dirt on the decorations of the room. Could Mr. Murray give an opinion as to the use of flues on small storage heaters as a means of overcoming this complaint? His undertaking always fitted flues on the larger storage heaters, but not on the small type. It had been suggested to him that the trouble was largely due to lack of ventilation, but he had found cases in which it occurred even where there was a 9 in. by 9 in. air brick.

Mr. MURRAY said he thought the trouble was due to burnt dirt in the atmosphere. He had used a method whereby the products of combustion were diffused over the heater by a cowl.

The PRESIDENT confirmed from his own experience the usefulness of a means of diffusion on the lines suggested by Mr. Murray.

Mr. J. R. FIRTH (Bradford) proposed a vote of thanks to Mr. Murray for his Paper and Mr. CARLTON (Shipley) seconded.

The 4 ACES for GAS



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Cape Town and District Gas Light and Coke Company, Ltd.

The Forty-Eighth Ordinary General Meeting of the Cape Town and District Gas Light and Coke Company, Ltd., was held at the Company's Offices, Africa House, Kingsway, London, W.C. 2, on Friday, May 13, 1938, at 12.30 p.m.—Sir GEORGE L. BARSTOW, C.B.E. (Chairman of Directors), presiding.

The MANAGING DIRECTOR and SECRETARY (Mr. R. W. Blackburn) read the notice convening the meeting, together with the Auditors' report on the balance-sheet. The Directors' Report and Statement of Accounts for the year ended Dec. 31, 1937, were taken as read.

THE CHAIRMAN'S ADDRESS.

The CHAIRMAN, in moving the adoption of the Report and Accounts, remarked that they were meeting for the first time in their new premises in the appropriately named Africa House. Their quarters, though modest, were sufficient for their needs and provided, at a less rental than they paid in Grosvenor Gardens, modern office accommodation.

The Report and Accounts had been in their hands, and he presumed he might take them as read. He had only a few observations on the Accounts. The Capital Account was unchanged except for the reduction of £1,632 by prepayment installations discontinued. In the General Balance-Sheet it would be seen that they had dealt with the matter of obsolete black cookers by writing off the value at which these stood in the books against Reserve and Contingency Account. These black cookers were a problem to them, as well as to other gas undertakings. When they were returned by consumers, it was impossible to find new consumers to take them, as cookers of a more modern and efficient type were demanded; it was accordingly felt to be more satisfactory to write off their book value, and they would have to deal in each year's accounts with the matter of obsolescence of older types of gas appliances. It was common knowledge that modern electric cookers were freely offered on easy terms in competition with gas, and as old type gas cookers, &c., came in from service on the districts they must replace them by modern appliances.

In the Revenue Account, continued the Chairman, their income from gas rentals had fallen by £1,551, and the volume of gas sold was less by 2·11%—*i.e.*, nearly 4 million cu.ft., as compared with 1936, though higher than in each of the years 1932-1935. Industrial consumption continued to improve, being up by 4¼ million cu.ft.; the falling off was entirely in ordinary and prepayment consumers—3·161 million and 5·322 million cu.ft. respectively. The falling off in gas rentals was partly offset by improved results from fittings rentals, residual sales, and rents receivable, and the total income was less by £508 only than in 1937.

On the expenditure side, working expenses (other than coal) had gone up by £3,002, the greater part of which was due to maintenance of works plant, mains, and services. It was found necessary during the year to undertake extensive repairs to the Mowbray holder. This expenditure (which should not recur in 1938) had beneficial effects in reducing leakage of gas. The coal carbonized in 1937 was less by nearly 1,000 tons than in 1936, and the reduction of expenditure under this head was £1,280. The total expenditure at Cape Town was higher than in 1936 by £355.

The final result, as shown by the Net Revenue Account, was that after paying debenture interest and sinking fund premium they carried forward to the next account £1,747. This result was somewhat disappointing. It was uphill work competing with the Municipal electricity supply, but the use of gas had such inherent value for both domestic and industrial purposes that he had every hope that they would not only hold their own but steadily improve their position. On the other hand, the costs of both coal and labour continued to rise in Cape Town, and if this tendency persisted they might find it necessary to consider the revision of their gas charges.

In conclusion, the Chairman paid tribute to the work of Mr. H. N. Port, their Engineer and General Manager, and to the staff in Cape Town, who had never lost heart and worked with energy and technical ability.

The resolution for the adoption of the Report and Accounts was seconded by Mr. R. W. BLACKBURN, and, in reply to a question by a shareholder, the CHAIRMAN said they had hopes of continued improvement on the industrial side, but there was, unfortunately, little indication of any increase at present in domestic consumption. As he had pointed out in his Address, they had special expenditure last year in respect of the Mowbray gasholder, which would not recur; so to that extent, at any rate, their net results might be expected to be rather more favourable next year.

The resolution was then put to the meeting and unanimously agreed.

Re-Election of Director and Auditors.

Mr. EDWIN NICHOLLS thereafter moved the re-election to the Board of Sir George L. Barstow, being the Director retiring by rotation. They were fortunate at this juncture, said Mr. Nicholls, when they had so many difficult problems to face, in having a gentleman at their head so capable and so experienced to guide them. Sir George held important positions in the world of commerce and brought his experienced judgment to bear on everything connected with the Company.

Mr. W. J. BRADFORD seconded the resolution, which was unanimously carried and briefly acknowledged by Sir GEORGE BARSTOW.

The Company's Auditors (Messrs. Kemp, Chatteris, Nichols, Sendell, & Co.) were re-appointed at the same remuneration as before, and a vote of thanks to the Chairman and Directors terminated the proceedings.

TRADE NOTES

The Coppée Company (Great Britain), Ltd.: Recent Contracts.

Among recent orders secured by the Coppée Company (Great Britain), Ltd., may be mentioned the following: A large Coppée Baum washery for Messrs. William Baird & Co., Scotland, for coal from 3¼ to 0 in.; a complete plant for drying coals required for coking, together with coal dry cleaning plant on the "B.S.C." system, for a Midlands coke oven installation; and a chemical plant for the treatment of tar products, such as naphthalene, anthracene, and carbolic and cresylic acids, for Powell Duffryn Associated Collieries, Ltd.

Steel Equipment for Office and Works.

An interesting brochure published by Joseph Westwood & Co., Ltd., gives details and illustrations of a wide range of the firm's steel equipment for office and works. Among these may be mentioned desks, chairs, and filing cabinets, adjustable steel shelving and racks, storage bins, trollies, cupboards, and clothing lockers. Other work undertaken by the firm includes rolling shutters and fireproof doors and large-scale constructional work. Contracts of the latter description embrace such jobs as the bridge carrying the main road over the River Medway at Rochester, the steel roof of Piccadilly Circus Underground Station, and many steel-framed buildings. A product which finds useful application on the gas-works is the firm's grab for excavation and handling work.

Information on Lubrication.

We have received a copy of the fifth revised edition of "Lubricating Oil Tests and Their Significance," by Mr. J. E. Southcombe, M.Sc., M.I.P.T., which contains chapters, added since the fourth edition, dealing with the latest information on the subject of lubrication. Part of this information only became generally available as recently as October, 1937, when it was the subject of deliberations at the Lubrication Conference held at the Institution of Mechanical Engineers. It will be recalled that the Author himself delivered a Paper at one of the sessions. One hears a great deal to-day about various tests which can be applied to lubricating oil and this book deals with their significance in a straightforward manner. It should be of interest and practical assistance to engineers in charge of plant. Copies of the book are obtainable through any bookseller or from the publishers, Messrs. Germ Lubricants, Ltd., at 3s. 6d. each, post free.

Bill Promoted by the West Yorkshire Gas Distribution Company

House of Lords

Before: *Lord* COZENS-HARDY (*Chairman*), *Lord* MUIRHEAD, *Lord* ABINGER, *Lord* BANBURY OF SOUTHAM, *and Lord* EBURY.

The important Bill dealing with the distribution of coke oven gas in a large area of West Yorkshire, promoted by the West Yorkshire Gas Distribution Company, with the backing of the United Kingdom Gas Corporation, came before the above Committee on Tuesday, May 10. Mr. Jacques Abady, K.C., Mr. J. H. Thorpe, K.C., and Mr. Royston Askew, appeared for the promoters. A large group of opponents, mainly municipalities, was represented by Mr. Craig Henderson, K.C., Mr. Maurice Fitzgerald, K.C., and Mr. E. J. Rimmer. A few other opponents were represented by Mr. Gerald A. Thesiger and also by Mr. H. F. Bidder. Quite a number of opponents had put in petitions and had reserved Counsel, which meant, of course, that they would only take part in the proceedings if events warranted it.

Mr. JACQUES ABADY opened the Bill and said the objects of it were to incorporate the West Yorkshire Gas Distribution Company with an authorized capital of £750,000, half in ordinary shares and half in preference shares with borrowing powers equal to half the amount of the issued share capital. The Bill would empower the Company to make contracts with statutory and non-statutory gas undertakings, whether in the hands of companies or municipalities, for the supply of gas, and with coke oven undertakings for the purchase of coke oven gas for distribution within the limits of supply proposed. The Bill further empowered the West Yorkshire Company to lay down and maintain mains for the purpose of distributing that gas, and, if necessary, to store gas.

Continuing, Counsel said he wished to emphasize the one factor underlying this Bill and he asked the Committee, with great respect, not to lose sight of it during the discussions on this Bill. There was nothing in the Bill which would compel anybody to sell any gas to the Company to be incorporated nor was there anything in the Bill which would compel anybody to buy any gas from the proposed Company. The only body upon which there was any obligation under the Bill was the West Yorkshire Gas Distribution Company. The promoters of this measure were the Directors of the United Kingdom Gas Corporation, which was a Company having an issued share and loan capital of about £4,500,000. The United Kingdom Gas Corporation controlled 48 gas undertakings in Great Britain and owned 99% of the ordinary capital of the Caledonian Gas Corporation, which, in its turn, controlled 18 gas undertakings in Scotland. The average holding of the United Kingdom Gas Corporation in the 48 gas undertakings in Great Britain was 93·64% of the ordinary share capital. Among the undertakings of which the United Kingdom Corporation had been successful in obtaining control were a number which were formerly in the hands of local authorities and who had thought it advantageous to the ratepayers and the consumers to transfer their undertakings in this way.

The scheme of control of the United Kingdom Gas Corporation was not the haphazard purchase and control of a gas undertaking here and there. They had not merely obtained the control by way of share holding but the Corporation dictated the management and development, and the technical, commercial, and sales policy by expert direction of the companies and undertakings of which control had been obtained. The scheme was to be able to supply gas throughout the proposed area by means of mains laid along regional routes. Within the proposed limits of supply, the United Kingdom Gas Corporation controlled 14 statutory and 4 non-statutory undertakings, to which was now to be added the undertaking of the Morley Corporation, concerning which negotiations had recently been concluded, making 15 statutory undertakings. Again, within the limits of supply proposed there were 61 undertakings with their own gas manufacturing plants and six of the largest of these produced approximately two-thirds of the total amount of gas made annually in the proposed area, so that the remaining 55 undertakings produced only one-third of the total amount of gas produced in the proposed area. These 55 undertakings comprised for the greater part a number of relatively small undertakings. On the other hand, there existed in this area a very large potential demand for cheap gas, mainly for industrial purposes. The promoters knew from experience in this neighbourhood that this large potential demand for cheap gas for industrial purposes could not be met by enlarging these small gas-works, but if this Bill were passed the promoters would be able to supply large quantities of gas at the low prices which industry demanded, not direct by the company to be incorporated, but through the existing gas undertakings. Incidentally, Counsel said that when he spoke of cheap gas he had in mind a price of 1s. to 1s. 3d. per 1,000 cu.ft. So far as the 19 companies in the area controlled by the United Kingdom Gas Corporation were concerned, the Company knew it would be able to make arrangements for these companies to purchase from it a large amount of cheap gas to be sold for industrial purposes. The question of how far the undertakings in the area which the United Kingdom Corporation did not control would take advantage of the facilities it was proposed to offer would be a matter entirely for those undertakings to decide.

If the Company which it was proposed to incorporate by this Bill were authorized by Parliament to lay mains throughout this area at its own risk, to provide mains and to enter into contracts to buy gas from coke ovens on the one hand and to sell it to gas undertakings on the other through whom it was supplied for industrial purposes in detail, it meant that the new Company would be buying from a diversity of sources and selling gas at a diversity of points of demand, and that was a risk which could not be taken with safety or cheapness by any individual undertaker. It was believed that by laying such a network of mains as he had suggested, taking the surplus gas from many coke ovens and making it available at many points at distances away, the Company which it was asked should be incorporated would be making a very material contribution towards meeting the real demand which existed for cheap gas in this area.

Results at Sheffield.

To the south of the area now proposed was the Sheffield Gas Company, which was doing a very similar thing to what was outlined in this Bill, although under different circumstances dealing almost entirely with the steel trade. At all events, the Sheffield Gas Company purchased gas from coke ovens and distributed it for the purposes of the industries in its area on a very large scale. Incidentally, Counsel mentioned that in the original Bill there was a certain small area to the south which did not now appear as part of the promoters' proposals because the Sheffield Gas Company, in its Bill which was to come before the Committee folowing the present one, was asking for that same area, and there was a desire not to conflict with the Sheffield Company over that. The result of the operations of the Sheffield Gas Company in buying coke oven gas and distributing it at cheap prices had been that in five years the output had been increased by 50%. Contrasting that with the whole of the 60 undertakings in the area proposed by the West Yorkshire Gas Distribution Company, Counsel said there had actually been a small decline on the part of these undertakings taken as a whole during the same period.

Continuing, Counsel said it might be argued that what was proposed in this Bill could be done equally well by the individual gas undertakings in the proposed area under separate contracts with the coke oven proprietors, but the reason why that could not be done satisfactorily was that the individual gas undertakings would have to rely on obtaining gas from individual coke ovens and in order to provide against the contingency of a breakdown at any of these individual coke ovens it would be necessary for the gas undertaking to keep its own manufacturing plant in a condition to be put into immediate use. Therefore, the internal economy of such an arrangement was one which did not lead to its adoption on any large scale. It had been done in three or four cases in this area, but it could be proved that the reason why it had not been done on a larger scale was because of the inherent risks and the comparatively small advantage which would be derived from adopting such a policy. On the other hand, the effect of the operations of the new Company, should it be incorporated, would be that those smaller undertakings which were in the position of having to re-build their works to meet increasing demands would be saved that expense because they would be able to go to the West Yorkshire Gas Distribution Company and, if terms were arranged, obtain all their requirements from the network of mains which that Company would lay down and into which would be sent coke oven gas from all parts of the area. If any undertaking could not come to terms for such a supply from the West Yorkshire Company, then it would be in no worse position than it was to-day, for it could endeavour to

make other arrangements with individual coke ovens on its own account.

The whole basis of the Bill was voluntary, but before coming into the Committee Room, the promoters had satisfied themselves of the large potential demand waiting to be served. Apart from that, there was a definite demand waiting to be dealt with in the areas of the undertakings in the area controlled by the United Kingdom Gas Corporation, and steps had been taken to ensure a supply of gas at specified prices for this purpose. That, therefore, was the first stage of the West Yorkshire Gas Distribution Company's operations, if this Bill were passed. For the rest, the promoters could only put before the Committee the advantages which they believed would follow the existence of a grid of gas mains such as was proposed, but, of course, the final success of the whole scheme would depend upon co-operation between the at present non-controlled undertakings and themselves. The promoters believed, however, that when the non-controlled undertakings saw the success which it was believed would certainly attend the first stage, they would be only too willing to co-operate. Steps had been taken to ascertain the demand existing in the areas of both the controlled and non-controlled undertakings, and figures with regard to this would be placed before the Committee in evidence.

It had been the experience of the promoters, however, that the availability of cheap gas did not, in itself, sell that gas. With cheap gas available, there was also required the co-operation of experts and industrialists in order to show the latter how they could best use the gas or how they could design apparatus for the more efficient use of it. The United Kingdom Gas Corporation already had that expert organization, and it was part of the present scheme that that expert organization would be made available for any of the undertakers in this area.

Opposition.

Having thus briefly outlined the proposal in the Bill, Counsel passed to the opposition which, he said, came from some municipalities which owned gas-works, some municipalities which did not own gas-works, some gas companies, and certain other opponents relating only to clause matters. So far as the opponents who owned gas undertakings were concerned, they in the early part of their petitions affirmed that they were meeting all the demands in their areas and were able to continue to do so. With that, however, said Counsel, he was not concerned, and it was for these petitioners to prove what they said in that respect. Then the petitioners put forward certain arguments, which he himself considered fallacious, as to why they were opposing the Bill on preamble. The first ground of objection was that if this Bill were passed, the new Company would compete with the existing gas undertakers in obtaining supplies of coke oven gas, and that was the real core of the objections of these petitioners. It was also alleged that the new Company would obtain a monopoly in the purchase of gas, and, further, that they would be unnecessary middlemen.

The answer to all this was that there existed in this area a certain amount of coke oven gas to-day, but very small use of it was made by the gas undertakings which were opposing this Bill. At the same time there was nothing in the Bill, if it were passed, to prevent the existing undertakings from buying coke oven gas as they wished. Therefore it seemed that the objections in the form they had been put forward were purely selfish and he denied emphatically that the West Yorkshire Gas Distribution Company would have any monopoly whatever. It simply was not true to suggest this, because there was nothing in the Bill which would empower the Company to force any owner of any coke oven to sell gas to the promoters unless he freely chose to do so on terms which were acceptable to him. Nor could it be said that the promoters would be middlemen, because the first stage of their operations would be to lay a system of mains for linking up the gas undertakings which it already controlled in this area. This was a pioneer effort in which private money was being risked, and the promoters contended that it contained the maximum of advantage with, as far as could be seen, no disadvantage.

Mr. *Edward Crowther*, Chief Engineer to the United Kingdom Gas Corporation, who was the first witness, supported the general facts stated by Counsel, and said that the first step would be to link up the 19 undertakings now controlled by the United Kingdom Gas Corporation. These mains, however, would also be available for supply to other undertakings in the area if they desired to avail themselves of them. Moreover, the mains would be used for the interchange of gas between one undertaking and another and would also be used for picking up coke oven gas at points wherever it was available. this gas being passed into the general system. Again, the availability of such a supply of gas throughout this large area would enable other undertakings to avoid having to spend money on extending their plants and at the same time to make full use of their existing plants, as additional supplies of gas would be available to them from the grid.

Wednesday, May 11.

Mr. W. CRAIG HENDERSON, K.C., on behalf of a large number of local authority and company undertakings, cross-examining Mr. Crowther, emphasized that the main product of the coke ovens was coke and that gas was a residual; when industry hit an evil time the coke ovens would be closed down.

Mr. *Crowther* replied that was so only rarely. As far as he was aware, the coke ovens which closed down were generally those which were on the point of wearing out, and then their replacement might be delayed until the demand for coke recovered.

Dealing with Counsel's point that when the ovens were worn out it was not an economic proposition to rebuild them, witness said that if the owners relied entirely on the coke market for their revenue and had no substantial market for residuals, that would be so. But the circumstances were changed very materially if they had a reliable market for the by-product gas; it might then be, and probably would be, economic for them to continue to work the ovens even in times of industrial depression. He agreed that at the moment the coke market was depressed as compared with the position a year ago, the chief circumstance being the extraordinary winter in Scandinavia. To the suggestion that the coke oven coke market was unduly sensitive, he said he did not know that it was any more sensitive than the gas coke market.

Questioned as regards the fact that, when he was Engineer at Bradford, a small quantity of coke oven gas was bought by the undertaking, but eventually that supply had ceased, he said that the coke oven plant was not by any means typical; it was almost derelict when the supply was first given to the Bradford undertaking, and was eventually shut down and was not rebuilt. It was only a trial.

COUNSEL put it that the producer of coke oven gas was not under the control of the persons using their gas.

Witness replied that that had been so in the past, but it was not so to-day. The circumstance that the coke oven supply to Bradford had ceased indicated one of the reasons why a system such as that contemplated by the Bill was so different from a normal supply from a coke oven undertaking, inasmuch as a disturbance of one element of the supply was by no means fatal to the scheme; the more extensive the scheme became, the less troublesome was any small disturbance.

COUNSEL said that that depended on whether or not a market was found for all the gas in the grid, which, he supposed, the proposed Company hoped to do.

Witness replied that he considered it more than a hope.

Asked what would happen if there were contracts existing covering the whole of the gas in the grid, and if one of the coke oven plants broke down, he said that the stand-by plant at the gas-works would be brought into use.

COUNSEL said he had thought that the grid scheme would enable the gas-works to dispense with stand-by plant.

Witness said it would enable the stand-by plant to be dispensed with at practically all the gas-works connected to the grid. There would be a linking up of gas undertakings both to each other and to supplies of coke oven gas, and he visualized receiving gas not only from coke ovens, but also in certain cases from gas undertakings which might have efficient surplus plant that could be put into production. That gas-works plant represented a valuable element of safeguard.

Replying to the argument by Counsel that under the terms of the Bill the West Yorkshire Gas Distribution Company did not accept any obligation to supply, he said that neither did it impose upon anybody an obligation to take a supply.

Another suggestion by Counsel was that, if there were no uniformity of price, the promoters could supply at any price it liked to the companies controlled by the United Kingdom Gas Corporation, and that it did not matter which of those companies brought in the profit, so long as the profit was made. Witness' reply to that was that the Corporation would soon cease to exist if it operated on those lines; he was satisfied that if prices had to be raised in any of its companies through mis-use of the trust which he hoped Parliament would place in the promoters, there was no doubt that those companies, regardless of the price charged, would soon be unable to make any return whatever to the shareholders.

COUNSEL suggested that the promoters could sell to their own companies at favourable prices and to other undertakings at other prices.

Witness said that in those circumstances he presumed the other companies would not buy. It was the intention of the promoters, so far as was humanly possible, to charge a like price in like circumstances of supply.

Safeguarding Contracts.

Mr. H. F. BIDDER (for the Wakefield Gas Light Company) asked whether there was anything in the Bill which would prevent the promoters giving a supply which was available at any moment

to one of their own undertakings rather than an undertaking which was not under their control, if they considered it to be in their interests to do so.

Witness replied that such a condition could not be expected to arise immediately, and in the meantime the people using the gas from the grid would make contracts which would safeguard them.

Mr. THESIGER (representing nine Urban District Councils owning gas undertakings in the area covered by the Bill) said that assuming the Bill was passed, after the promoters had spent £800,000 on mains, those mains would not have reached Skipton and some other areas within the limits specified in the Bill.

Witness replied that quite possibly the gas from the grid would reach such undertakings second-hand. If the grid mains were coupled to Huddersfield, and Huddersfield gave bulk supplies to those other undertakings, they would in fact be receiving gas from the network even though they were not coupled to it at first-hand. He agreed that that would depend upon Huddersfield obtaining gas at a price which would encourage them to supply the other undertakings. But he emphasized that the proposals for linking up were tentative, flexible, and subject to modifications in the light of circumstances which might arise.

COUNSEL, having ascertained that the proposed calorific value of the coke oven gas to be fed to the grid would be a minimum of 500 B.Th.U. per cu.ft., pointed out that the gas supplied at Harrogate and Sowerby Bridge had declared calorific values of 460 and 450 respectively, so that if surplus gas were to be used in the grid from such undertakings, it would be necessary to adjust the calorific values. He suggested that the idea of using surplus gas from existing undertakings had been put forward to cover up the fact that a Departmental Committee had reported against a grid for coke oven gas in that area.

Witness replied that the calorific values of the stations connected with the grid would have to be standardized, of course, but there would be no difficulty in so doing. Those undertakings which joined up with the grid as buyers or sellers would have to re-declare their calorific values at 500.

COUNSEL said that in 1928 the National Fuel and Power Committee, in suggesting that a Departmental Committee should be set up, had pointed out that it was necessary for that proposed Committee to give close attention to the coke position, to ascertain whether there might be a surplus of coke, metallurgical or domestic, which would adversely affect the coke market and so annul the benefits that might accrue from the adoption of such a scheme of gas distribution. He asked if the coke produced at coke ovens competed in the market with that produced by gas undertakings.

Witness said he would not put it quite so high to-day. He was advised that an arrangement was to be reached in that very area between the producers of gas coke and oven coke for the purpose of stabilizing prices.

COUNSEL suggested that the more successful the grid, the greater would be the output of coke in competition with that produced by the gas undertakings, so that the coke prices would be depressed; a process of economic pressure would cause those gas undertakings he represented to cease gas manufacture and would compel them to buy gas from the grid at such prices as the promoters could get out of them.

Witness did not agree.

Mr. JACQUES ABADY, re-examining with regard to questions concerning the obligation of the Sheffield Gas Company to give supplies from its grid to statutory undertakers, said that it was limited to statutory undertakers within whose areas of supply the Sheffield Gas Company was purchasing coke oven gas.

If, as the result of the proposals in the Bill, gas could be sold cheaper, there would be a greater demand for it, and whether the gas were made at the coke ovens or at the gas-works, the effect was the same with regard to the output of coke. If the promoters bought coke oven gas which otherwise would be wasted, then they would be improving the demand for gas without increasing the supply of coke.

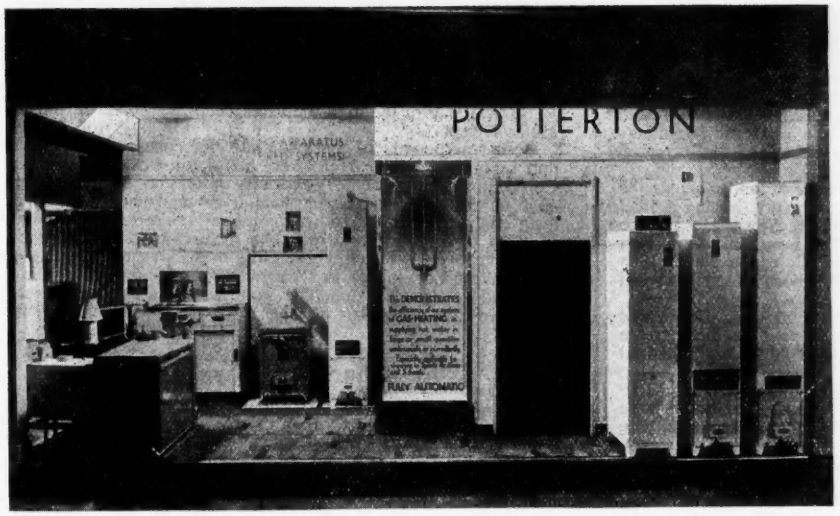
Witness agreed.

Mr. ABADY, replying to an interjection by Mr. Bidder, concerning the obligation to supply, said that he was willing to accept a clause placing the promoters under an obligation to sell, if the opponents would place themselves under an obligation to buy.

Witness agreed that during the last ten years in the 61 undertakings within the proposed area, the consumption of gas per domestic consumer had decreased, though the number of consumers supplied had been increased. The Bill proposed to place at the disposal of gas undertakers a large quantity of industrial gas which would enable them to compensate for reduced consumption per domestic consumer.

COUNSEL intimated that the promoters would be prepared to accept an Equality Clause, similar to the amendment made in 1934

Postscript to "Olympia"



The other section of our stand as already illustrated in the technical press displayed various phases of CENTRAL HEATING and BOILER UNITS ranging from 16,000 to 1,250,000 B.Th.U.'s per hour with various forms of automatic control and allied equipment.

♦

Rex and Emperor Boilers are represented at the Glasgow Exhibition in the Palace of Industry and in the Gas Pavilion.

Catalogue on Request.

General view of the Hot Water Supply section of our stand at the Ideal Home Exhibition, showing "EMPEROR" Thermal Storage Set for Culinary and Towel Drying services. Also the "REX" Domestic Heater maintaining a continuous shower which was in operation for the entire period of the exhibition.

THOMAS POTTERTON (Heating Engineers) Ltd., CAVENDISH WORKS, BALHAM, LONDON, S.W. 12

to the Gas Works (Clauses) Act of 1847, providing that supplies of gas should be provided at like prices in like circumstances.

Substantial Industrial Demands.

Colonel *W. Moncrieff Carr* (Managing Director of the United Kingdom Gas Corporation) gave evidence. Following the acquisition by the Corporation of a number of undertakings in the West Riding, he said, it had become apparent that there were substantial demands for gas for industrial purposes, any one of which was very much beyond the scope of the undertakings as they existed at present, both as to the quantities available and the prices at which the gas could be sold. He had first considered the linking up of the plants as they existed. That would have enabled him to cope with only a very small part of the potential business, however, and would not enable him to sell gas at a price which would secure the greater part of the load. He knew that there were surplus supplies of gas from certain coke ovens in West Yorkshire which might be made available, and that a number of large collieries in the area were producing bituminous coals suitable for bulk carbonization, and he had felt that, given a market for the gas, it might be worth while considering bulk carbonization at the pitheads. A characteristic of the district covered by the Bill was the succession of small undertakings adjacent to each other, and a part of the area was industrial and was very densely populated.

It was the intention to distribute purified gas from the grid, the great advantage of that being that supplies could be afforded direct to areas which were not at the moment adjacent to gas-works. If unpurified gas were taken from the coke ovens, it must be fed to gas-works for purification. Commenting upon the suggestion by the petitioners that, inasmuch as it was the intention to distribute purified gas, there should be specific reference to it in the Bill, he pointed out that in some cases it might not be practicable to purify the gas at a particular coke oven plant, and a specific reference in the Bill would prevent the purchase of such gas. Further, a particular user might wish to buy a large supply of unpurified gas. Normally, however, it was proposed to buy and sell purified gas; the direct supply of unpurified gas would be possible only to a consumer adjacent to a coke oven plant. There was one such prospective user in Castleford at the moment who would be prepared to buy unpurified gas, which was suitable for his purpose, and the quantity required was sufficient to make it an economic proposition to supply from the coke ovens.

He knew of no area having a greater variety of industries and greater potentialities for the use of gas than the part of West Yorkshire covered by the Bill. As evidence of the truth of the opinion expressed in the reports of the Area Gas Committee that industry must have cheap gas, not only in the interests of the users but also of the Gas Industry itself, he showed the advance that had been made in five years as the result of the supply of cheap gas by the Stretford and District Gas Board, of which he had been Engineer and General Manager for fourteen years. The industrial demand at Stretford had increased from 254 to 633 million cu.ft. per annum in five years, an increase of 171%; the average price received for that industrial gas was 3·47d. per therm. Further, that industrial demand had been accompanied by an increase in the sales for domestic purposes. In the first instance there had been a decreased consumption of gas per domestic consumer, but during the last two years in that area the consumption per domestic consumer had increased, because the Board had been able to offer more favourable tariffs to the domestic consumers than might have been possible but for the benefit of the increased industrial load.

As showing the importance of the linking of undertakings, he said that one large consumer, the Ford Company, having a load of 200 million cu.ft. per annum, had left the Stretford area for Dagenham. Had the Stretford undertaking been linked up with others and had been able to utilize at once the excess plant which had been making that gas, it would have been possible to sell even cheaper than it had done.

In the Newcastle district 42·7% of the total sales of gas was for industrial purposes. There had been a considerable increase of consumption as the result of the policy of supplying industrial loads at cheap prices.

In the areas of the Companies controlled by the United Kingdom Gas Corporation, there were many factories, including large electrical manufacturing works, glass works, copper, clothing, wire works, large bakeries, and a great variety of engineering works. Industrial gas experts representing the Corporation had visited the various industrial establishments in those areas, and it was clear that it was necessary to make gas available at lower rates than were possible while the undertakings were operating as at present. As the result of those visits the Corporation had been asked to submit prices for approximately 500 million cu.ft. per annum for glass works; 300 million cu.ft. for bakeries; 500 million cu.ft. for copper works; 150 million cu.ft. for various engineering works; 100 million cu.ft. for electrical manufacturing works, and 60 million cu.ft. for foundries, mostly producing aluminium and brass. Those enquiries, for 1,610 million cu.ft. per annum, could be converted into contracts if and when gas could be offered at the price he visualized.

Considered as a whole, sales by the gas undertakings in the area covered by the Bill had decreased by 0·36% during the last ten years, and he compared the circumstances in that area with those in the area of the Sheffield Gas Company, which bought and distributed large quantities of coke oven gas and had followed a policy of providing cheap gas for industrial purposes. It was significant, he said, that in the West Yorkshire area covered by the proposals of the Bill, the number of consumers was 11·04% more in 1936 than in 1927, contrasted with the decrease of 0·36% in sales of gas. Therefore, the consumption per consumer must have been reduced during that period. In the Sheffield area, on the other hand, the increase of consumption during the same period was 56·89%; he had no figures of the number of consumers, but he felt certain that the number had not increased by 56%.

Mere Linking and the Network.

As showing the disadvantages of the mere linking of individual gas undertakings and individual coke ovens, as contrasted with a network such as the Bill envisaged, he said that at Pudsey a reduction in price had resulted in the development of a large industrial load. A main had been constructed between the gas undertakings at Pudsey and Drighlington, on the assumption that the surplus gas at Pudsey could be used at Drighlington; but the increased demand at Pudsey was such that they had not been able to supply what they wanted to supply in Drighlington. The only way in which the amount of gas required could be made available, therefore, if the Bill were not passed, would be by extensions of works. The only advantage arising from the linking up of the two undertakings, therefore, would be the minor one that it would be necessary to extend the plant at only one of the works instead of at both.

Surveys and enquiries had been made in the West Yorkshire areas of the undertakings controlled by the Corporation, and it was estimated that the industrial loads which could be secured within a reasonable period if gas were available at prices at a minimum of 3d. per therm was 4,124 million cu.ft. per annum. That figure included the 1,610 million cu.ft. per annum represented by actual enquiries. A questionnaire had been addressed to 1,104 firms in areas not controlled by the Corporation, selected as likely to be reasonably large consumers of gas, and 314 replies had been received from firms interested in cheap gas. A large quantity of oil fuel was used in the area at present and he estimated that, allowing a reasonable period for the development of the network proposed, a total of 5,000 million cu.ft. per annum could be sold within the areas not controlled by the Corporation, if the gas were available at the right price. That compared with the 4,124 million cu.ft. per annum which he estimated in respect of the areas controlled by the Corporation.

The scheme now put forward differed considerably from that which was considered by the Area Gas Supply Committee. That Committee had considered a network primarily as a means of disposing of the surplus coke oven gas which it was considered might be made available. The enquiries of the Committee, when he had given evidence before it, had not indicated to him that they were investigating the advantages and economies to be effected by linking up a large system for the supply of purified gas. Secondly, a greater quantity of coke oven gas was available and could be made available in the area than had been mentioned in the Committee's Report.

Giving particulars of the availability of coke oven gas, he said that in one case coke ovens were being constructed in which the Corporation had become financially interested to the extent of 40% of the cost. Agreements would be made between the coke oven company and the colliery company concerned, and between the Gas Corporation and the coke oven company. The right to take coke oven gas from those coke ovens was to be transferred to the West Yorkshire Gas Distribution Company, which the Bill proposed to incorporate. The contract would extend over 25 years. He gave particulars of other coke oven plants for the supply of gas.

Thursday, May 12.

Mr. JACQUES ABADY referred to the suggestion made in cross-examination of Colonel Carr on the previous day that it would be possible for the Company to give preferential terms in supplying coke oven gas, and said that in addition to the undertaking given by him to insert an "equality" clause, there was a further safeguard against preferential terms in Clause 66A of the Bill which gave certain powers of appeal on the part of gas authorities to the Board of Trade.

The cross-examination of Colonel Carr by Mr. CRAIG HENDERSON was then continued. A large number of figures were put to witness challenging the accuracy of the estimates put in for the promoters, and it was suggested that the individual undertakers in the area could buy coke oven gas and sell it as cheaply as the proposed Company.

Witness replied that there were advantages and economies to be obtained from a linking up scheme which could not be secured

by one undertaking buying gas and distributing it, quite apart from the price at which the gas was bought.

Replying to a question that it was noteworthy that nearly all the 60 undertakings in the area except for the 19 undertakings controlled by the United Kingdom Gas Corporation were opposing, Colonel Carr said he knew from long experience in the Gas Industry there was a very parochial point of view which, in his opinion, was not to the advantage of the extension of gas supply for industrial purposes.

Asked with regard to the composition of the coke oven gas to be purchased, Colonel Carr said that the form of agreement with the sellers of coke oven gas was to the effect that the gas was to be free from sulphuretted hydrogen according to the test prescribed by the Gas Referees. The organic sulphur was not specified in the proposed agreement. As regards naphthalene, it was specified at 1 grain per 100 cu.ft. during the period from May 1 to Oct. 31, and not more than ½ grain from Nov. 1 to April 1. The oxygen was specified at 0·5%. In the course of further answers, Colonel Carr said he already had actual contracts for coke oven gas at 7½d. per 1,000 cu.ft. for a period of 25 years.

Mr. BIDDER suggested that the cost of coal had gone up and would affect the position.

Colonel *Carr* said that as these contracts were for purified gas, for the period in question, the cost of coal did not come into the question, and there was no need for a coal clause.

It was further suggested that the United Kingdom Gas Corporation could get Special Orders to link up the various undertakings which it controlled, and therefore, so far as that was concerned, the Bill was not necessary.

Mr. JACQUES ABADY pointed out that the United Kingdom Gas Corporation could not get such powers, although the individual undertakings controlled by the United Kingdom Gas Corporation could make application for Special Orders applying to each.

Mr. BIDDER pointed out that so far as the areas of the undertakings were continuous, a bulk supply could be given at present without a Special Order, but that Special Orders could be applied for in order to link up the controlled undertakings of the United Kingdom Corporation.

Colonel *Carr* said he had considered the possibility of carrying out this scheme by Special Order, but decided it would be impracticable to do so. Mains would have to be laid in areas not under the control of the United Kingdom Gas Corporation, there would be something like 170 Special Orders, and there would have to be special agreements between the different undertakings which, he considered, would be beyond the wit of man to devise, inasmuch as the cost of the mains would have to be apportioned between various undertakings. He added that the accounts of the various controlled undertakings were kept entirely separate, and it would be extremely difficult to allocate the cost of the linking-up mains. It was agreed that the scheme had been discussed with the legal advisers of the Board of Trade, but it had been decided that procedure by Bill would be the most convenient course to adopt.

On the question of mains, Colonel Carr said he was not seeking to lay mains in this area solely for the benefit of the undertakings which the United Kingdom Corporation controlled, but wished to make them available for supply to all other undertakings in the area.

Mr. BIDDER put it that when the new Company obtained a supply of gas it would be in the position of dictator as to whom gas should be sold, and that there was nothing to prevent preference in giving a supply to a controlled undertaking instead of to another undertaking, in case of shortage of supplies.

Colonel *Carr* replied that for years this surplus gas had been available, but had not been taken by gas undertakings in the area, but the moment somebody came along with a scheme to make economic use of that gas, he was called a dictator. The point was that the United Kingdom Gas Corporation had to think of its shareholders, and the whole basis of the scheme was to give supplies of coke oven gas to all who wanted them, and it would be to the advantage of the Company to supply as much gas as possible.

The CHAIRMAN (Lord Cozens Hardy) asked Colonel Carr what proportion of the coke oven gas his Company would be able to absorb in the first stage.

Colonel *Carr* said it was estimated that in the first stage the undertakings controlled by the Company would take all the available supplies, and having regard to the opposition to this scheme now he did not imagine many of the other undertakings would wish to take a supply in the first stage. In the second stage, other sources of coke oven gas would be available, and there would be a surplus available for other undertakings.

The CHAIRMAN asked whether it would be possible for the Company to make agreements with coke oven proprietors so that others could not get a supply.

Colonel *Carr* said the Company would only enter into agreements for such gas as it required in order to develop the area, and to distribute gas in the most economical manner.

Sir ALEXANDER WALKER, who was Chairman of the Area Gas

(*Continued on page* 472).

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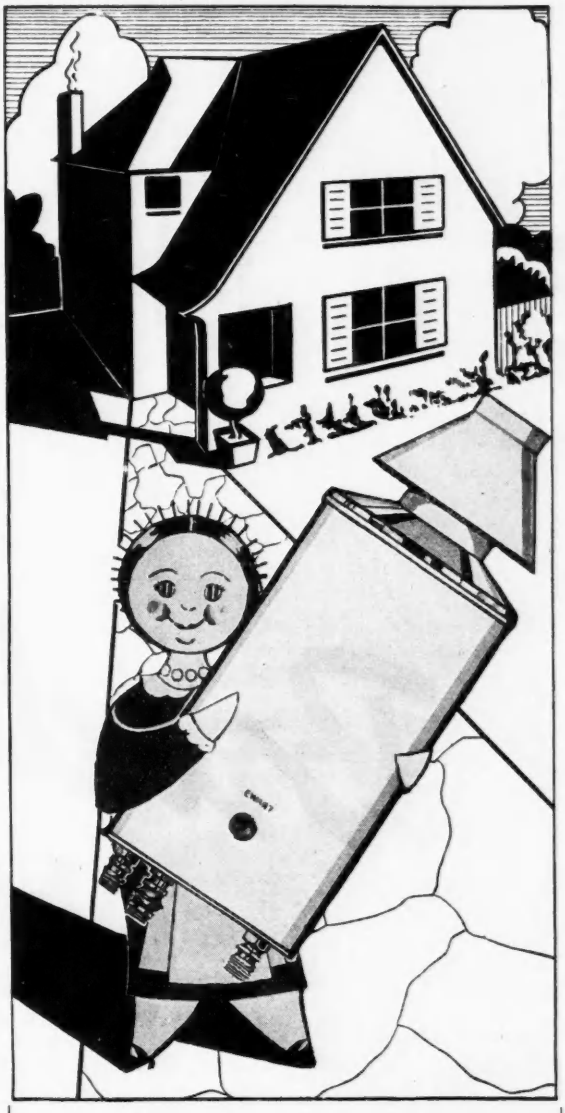

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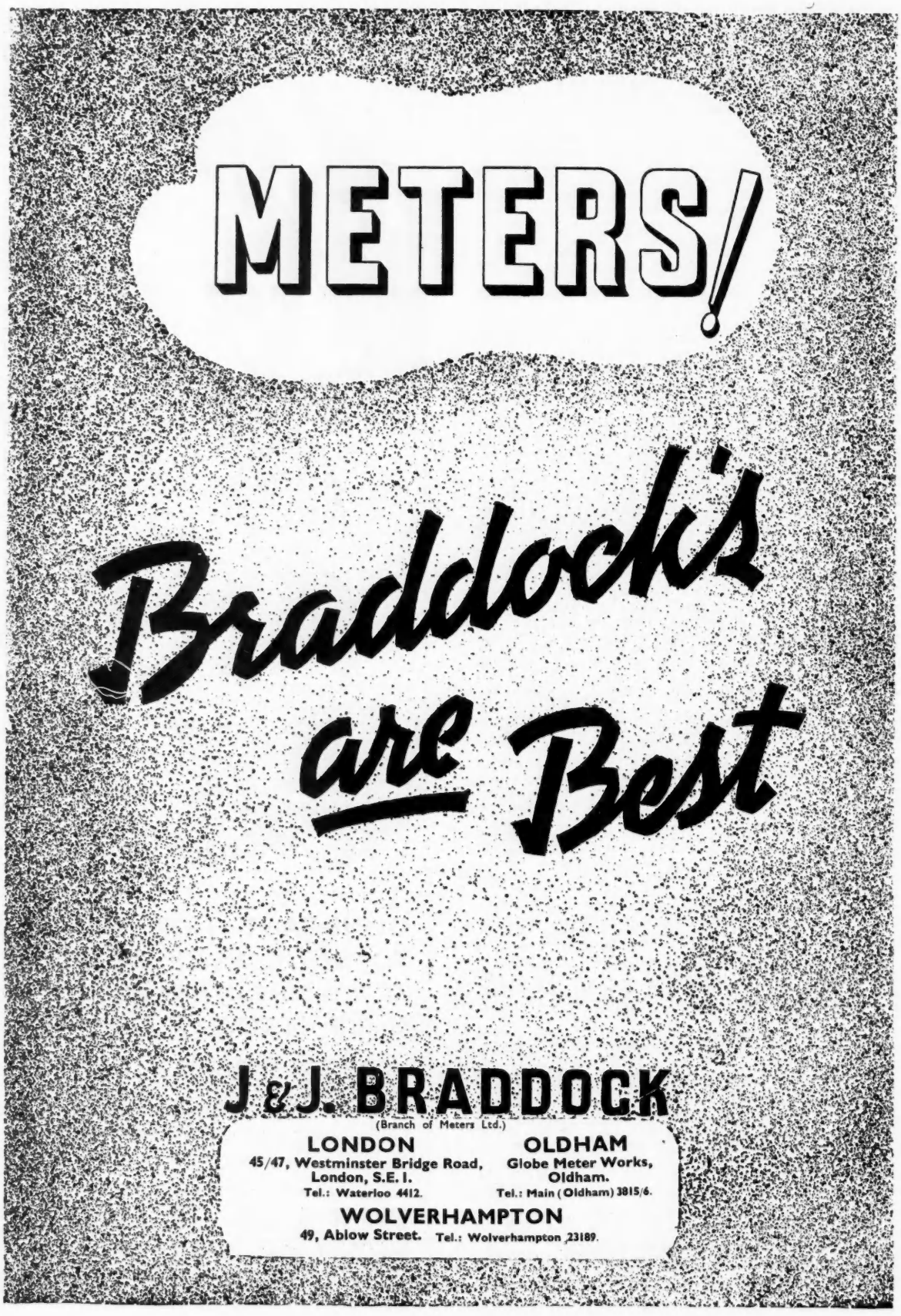
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Markets and Manufactures

Current Sales of Gas Products

The London Market

LONDON, *May* 16.

There is very little alteration in the values of Tar Products in the London market, present values being as follows:

Pitch nominal at about 33s. per ton f.o.b.
Creosote, about 5½d.
Refined tar, 3¾d.
Pure toluole, 2s. 1d. to 2s. 2d.
Pure benzole, about 1s. 9d.
95/160 solvent naphtha, 1s. 7d.
90/160 pyridine, 10s. to 11s.
All per gallon naked at makers' works.

The Provinces

May 14.

Crude Gas-Works Tar, 19s. to 24s.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were: Pitch—East Coast, 33s. to 34s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 33s. to 34s.* Toluole, naked, North, 1s. 7½d. to 1s. 9d. Coal tar, crude naphtha, in bulk, North, 7¾d. to 8¼d. Solvent naphtha, naked, North, 1s. 4½d. to 1s. 5d. Heavy naphtha, North, 1s. 3d. to 1s. 3½d. Creosote, *ex* works, in bulk, North, liquid and salty, 4⅞d. to 5⅛d.; low gravity, 4¼d. to 4⅜d. Heavy oils, in bulk, North, 5d. to 5¼d. Carbolic acid 60's, 2s. 3d. to 2s. 6d. Naphthalene, £13 10s. to £16. Salts, 80s. to 85s., bags included. Anthracene, "A" quality, 4½d. to 4¾d. per minimum 40% purely nominal; "B" quality unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Scotland

GLASGOW, *May* 14.

Business is still very slow, but there have been little or no alterations in quotations during the week.

Crude gas-works tar.—Actual value remains at 37s. to 38s. per ton *ex* works in bulk.

Pitch remains difficult, with values called round 26s. to 27s. per ton f.o.b. Glasgow for export, and about 25s. to 26s. per ton *ex* works in bulk for home trade.

Refined tar.—A good volume of new business has been put through at 3¾d. to 4d. per gallon f.o.r. naked for home trade and 3d. to 3¼d. per gallon in buyers' packages at makers' works for export.

Creosote oil.—Available supplies are well looked after at the following prices: Specification oil, 5d. to 5¼d. per gallon; low gravity, 6¼d. to 6½d. per gallon; neutral oil, 5d. to 5¼d. per gallon; all *ex* works in bulk.

Cresylic acid.—This product continues remarkably quiet, with quotations nominal as under: Pale, 97/99%, 2s. to 2s. 3d. per gallon; dark, 97/99%, 1s. 9d. to 2s. per gallon; and pale, 99/100%, 2s. 6d. to 2s. 8d. per gallon; all according to quality, *ex* works in buyers' packages.

Crude naphtha is commanding 5½d. to 6d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha is not too active with 90/160 grade at 1s. 4d. to 1s. 4½d. per gallon, and 90/190 heavy naphtha at 1s. 1d. to 1s. 1½d. per gallon.

Motor benzole remains at 1s. 4d. to 1s. 4½d. per gallon.

Pyridine.—Values are lower, with 90/160 grade at 10s. 6d. to 11s. per gallon, and 90/140 grade at 11s. to 12s. per gallon.

Benzole Prices

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole..	0	9½	to	0	10	per gall. at works
Motor „ ..	1	3	„	1	3½	„ „ „
90% „ ..	1	4	„	1	4½	„ „ „
Pure „ ..	1	8	„	1	8½	„ „ „

Contracts Advertised To-Day

Coal.
Droitwich Gas Department. [p. 474.]

Crane (Locomotive).
Warrington Gas Department. [p. 474.]

Gasholder Inspection.
Glasgow Gas Department. [p. 474.]

Gasholder (Waterless).
Glasgow Gas Department. [p. 474.]

Mantles.
Sutton-in-Ashfield Gas Department. [p. 474.]

Meters.
Sutton-in-Ashfield Gas Department. [p. 474.]

Steam Tubes and Fittings.
Sutton-in-Ashfield Gas Department. [p. 474.]

Northampton Capital Issue

Applications are invited by the Directors of the Northampton Gaslight Company in amounts of £10 and upwards in multiples of £1 for the purchase of an issue of £48,984 Northampton Gas Consolidated Stock. This is entitled to a maximum dividend of 5% per annum at the price of £110 per £100 of stock, yielding at that price £4 10s. 11d.% per annum. The list of applications opened on May 17 and will be closed on or before May 20. Payment of this stock will be made as follows: On application 10% of the nominal amount of the stock applied for and the balance including premium or allotment.

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THE SOCIETY OF BRITISH GAS INDUSTRIES · 1905 ·

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GAS STOCKS AND SHARES

The volume of business on the Stock Exchange last week was exceptionally small. Investors, both permanent and otherwise, are apparently leaving markets severely alone and waiting for a lead. The position in America, which tends to get worse, does not assist matters, and until signs of some improvement in Wall Street appear any better conditions at home will be adversely affected.

Despite the failure of the L.C.C. loan, the gilt-edged market closed fairly firm. Home rails, however, were disappointing. The traffic receipts have not come up to expectation and with sellers predominating prices were steadily marked down. Industrials were no better and quotations generally closed lower than a week ago. The Kaffir market was more active than some, a demand arising for some of the low-priced shares, and this was the only section to show a hardening tendency.

Compared with some markets the Gas Section was fairly well supported and quotations remained firm. Prices changed were mostly *ex* div., though a drop of 5 points occurred in Hornsey consolidated to 105. On the other hand, it will be seen in the Official List that the market was not altogether devoid of improvements. The only alteration on the Provincial Exchanges was a fall of 6d. in Newcastle units, while in the Supplementary List nominal quotations, with few exceptions, remained unchanged.

At the time of writing there is a good supply of ordinary gas stocks available which are attractive at current prices. Included among these are the following, all of which give a yield of 5% or over:

Amount Offered.	——	Dividend, %	Price.	Gross Yield, %
£				£ s. d.
1,000	Bombay	8	26/3	6 1 10
500	Commercial	5	87½	5 14 3
1,000	Gas Consolidation "A"	5	20/–	5 0 0
588	Hampton Court	7½	145	5 0 0
5,000	Imperial Continental	10	132	7 11 6
1,100	Oriental	8*	153	7 3 0
2,000	Severn Valley	5½	21/3	5 1 3
986	South Suburban	6	120	5 0 0
1,000	South Metropolitan	5½	107	5 2 9
2,000	South Western Corporation ..	5	18/6	5 8 1
2,000	Swansea	5	98	5 2 0

* Paid free of tax.

The Directors of the Montevideo Gas and Dry Dock Company, Ltd., are recommending the payment of a final dividend on the ordinary stock of 4½%, free of tax, for the year to Dec. 31 last, 3% of which will be paid on June 1 next and 1½% on Dec. 1, thus making with the interim dividend paid last December, a total of 6%, free of tax, for 1937.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations May 13.	Rise or Fall on Week.
1,767,439	Mar. 7	8	8	Alliance & Dublin Ord. ...	140—150	...
374,000	Dec. 13	4	4	Do. 4 p.c. Deb. ...	95—100	...
558,190	May 9	5	5	Asscd. Gas & Water U'd'ts Ord.	17/6—19/6*	—/6
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	19/—21/–*	...
216,041	,,	§-/4	4	Do. 4 p.c. Red. Cum. Pref.	19/—20/–*	...
278,590	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	17/—19/–*	...
500,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb. ...	94—99	...
558,890	Feb. 21	7	7	Barnet Ord. 7 p.c.	158—163	...
300,000	Apl. 4	1/4½	1/9½	Bombay, Ltd.	24/6—26/6	...
179,915	Feb. 21	9½	9½	Bournemouth sliding scale ...	195—205	...
590,407	,,	7	7	Do. 7 p.c. max. ...	157—162	...
493,960	,,	6	6	Do. 6 p.c. Pref. ...	132—137	...
50,000	Dec. 13	3	3	Do. 3 p.c. Deb. ...	78—83	...
262,025	,,	4	4	Do. 4 p.c. Deb. ...	98—103	...
335,000	,,	5	5	Do. 5 p.c. Deb. ...	115—120	...
357,900	Feb. 21	7½	7½	Brighton, &c., 6 p.c. Con. ...	145—150	...
649,955	,,	6½	6½	Do. 5 p.c. Con. ...	128—133	...
205,500	,,	6	6	Do. 6 p.c. 'B' Pref.	125—130	...
855,000	Mar. 7	7	8	British Ord.	138—143	...
100,000	Dec. 13	7	7	Do. 7 p.c. Pref.	142—147	...
350,000	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115	...
120,000	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
450,000	,,	5	5	Do. 5 p.c. Red. Deb. ...	102—107	...
450,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
100,000	22 May '33	6	4	Cape Town, Ltd.	¼—2¼	...
100,000	6 Nov. '33	4½	4½	Do. 4½ p.c. Pref. ...	¼—3¼	...
150,000	Dec. 13	4½	4½	Do. 4½ p.c. Deb. ...	65—75	...
626,860	Feb. 7	6	6	Cardiff Con. Ord.	120—125	...
237,860	Dec. 13	5	5	Do. 5 p.c. Red. Deb.	106—111	...
98,936	Mar. 21	2/-	2/-	Colombo Ord....	1⅝—1¾	...
24,510	,,	1/4½	1/4½	Do. 7 p.c. Pref.	23/—25/–	...
739,453	Mar. 21	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	16/6—18/6	...
296,144	,,	1/3·30	1/3·30	Do. 8 p.c. Pref.	23/—25/–	...
1,775,005	Feb. 7	5	5	Commercial Ord.	83—88	...
620,000	Nov. 29	3	3	Do. 3 p.c. Deb. ...	73—78	...
286,344	Feb. 7	5	5	Do. 5 p.c. Deb. ...	113—118	...
807,560	Feb. 21	7	7	Croydon sliding scale... ...	137—142	...
644,590	,,	5	5	Do max. div.	107—112	...
620,385	Dec. 13	5	5	Do. 5 p.c. Deb.	115—120	...
239,000	Feb. 7	5	5	East Hull Ord. 5 p.c.... ...	96—101	...
185,355	Feb. 21	6	6	East Surrey Ord. 5 p.c. ...	118—123	...
176,211	Dec. 13	5	5	Do. 5 p.c. Deb. ...	115—120	...
250,000	Nov. 15	7	4	Gas Consolidation Ord. ...	19/—21/–	...
250,000	May 9	4	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6*	—/6
19,223,324	Feb. 7	5⅜	5⅜	Gas Light & Coke Ord. ...	23/3—24/3a	...
2,600,000	,,	3½	3½	Do. 3½ p.c. max. ...	78—81	—2
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref.	99—102	...
2,993,000	Jan. 17	...	3½	Do. 3½ p.c. Red. Pref.	100½—102½	...
8,602,497	Nov. 29	3	3	Do. 3 p.c. Con. Deb.	78—81	...
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb.	112—115	...
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb.	110—113	...
700,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb.	97—100	...
270,466	Feb. 21	6	6	Harrogate New Cons. ...	118—123	...
157,500	Mar. 21	1/2§	1/‡	Hong Kong and China Ord	¾—1	...
213,200	Feb. 7	6	6	Hornsey Con. 3½ p.c. ...	100—110	—5
5,600,000	May 9	8	12	Imperial Continental Cap. ...	127—132*	—8
223,130	Jan. 17	3½	3½	Do. 3½ p.c. Red. Deb. ...	88—93	...
285,242	Feb. 21	8½	8½	Lea Bridge 5 p.c. Ord. ...	167—172	...
11,751	Feb. 21	8	10	Maidstone 5 p.c. Cap.... ...	175—185	...
63,480	Dec. 13	3	3	Do. 3 p.c. Deb. ...	70—75	...
75,000	Nov. 29	†10	†10	Malta & Mediterranean ...	142—147	...
392,000	Apl. 1	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	99—102	...
231,977	Feb. 21	5	5	M.S. Utility 'C' Cons. ...	99—104	...
968,658	,,	4	4	Do. 4 p.c. Cons. Pref.	95—100	...
360,075	Dec. 13	4	4	M.S. Utility 4 p.c. Deb. ...	97—102	...
148,955	,,	5	5	Do. 5 p.c. Deb. ...	113—118	...
675,000	May 9	†6	†6	Montevideo, Ltd.	70—75*	—3
250,000	Mar. 7	7½	7½	North Middlesex 6 p.c. Con.	145—150	...
396,160	Feb. 7	5	5	Northampton 5 p.c. max. ...	107—112	...
300,000	Apl. 25	†9	†7	Oriental, Ltd.	150—155	...
468,537	Dec. 13	8	8	Plymouth & Stonehouse 5 p.c.	154—159	...
621,667	Feb. 7	8½	8½	Portsmouth & Gosport Cons.	160—165	...
241,446	,,	5	5	Do. 5 p.c. max. ...	102—107	...
73,350	,,	5	5	Do. 5 p.c. Pref. ...	108—113	...
247,966	Dec. 13	4	4	Primitiva 4 p.c. Cons. Deb. ...	98—103	...
625,959	Jan. 17	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
15,000	Mar. 21	6	6	San Paulo 6 p.c. Cum. Pref. ...	8½—9½	...
441,275	Apl. 25	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	20/6—22/6	...
460,810	Mar. 21	-/10⅞	-/10⅞	,, ,, 4½ p.c. Cum. Pref.	19/6—21/6	...
133,201	Feb. 7	8½	5	Shrewsbury 5 p.c. Ord. ...	128—133	...
9,000	June 7	4	4	South African Ord.	3½—4½	...
1,371,752	Apl. 25	1/2⅞	1/2⅞	South East'n Gas Cn. Ld. Ord.	21/6—23/6	...
871,636	Mar. 7	-/10⅞	-/10⅞	Do. 4½ p.c. Red. Cum. Pref.	20/6—22/6	+-/6
498,818	,,	4	4	Do. 4 p.c. Cum. Pref. ...	18/—20/–	...
450,000	Feb. 7	4	4	Do. 4 p.c. Deb.	100—103	...
150,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—98	...
6,709,895	Feb. 7	6	5	South Met. Ord.	104—107	...
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pf. ...	130—135	...
850,000	,,	4	4	Do. 4 p.c.Irred. Pf. ...	97—100	...
1,895,445	Dec. 13	3	3	Do. 3 p.c. Deb. ...	78½—81½	+½
1,000,000	Jan. 17	5	5	Do. 5 p.c. Red. Deb....	109—112	...
1,543,795	Feb. 7	6	6	South Suburban Ord. 5 p.c....	118—123	...
512,825	,,	5	5	Do. 5 p.c. Pref....	110—115	...
500,000	,,	4	4	Do. 4 p.c. Pref....	95—100	...
250,000	,,	§18/9	3½	Do. 3½ p.c. Red. Pref.	98—101	...
888,587	Dec. 13	5	5	Do. 5 p.c. Deb....	115—120	...
250,000	,,	4	4	Do. 4 p.c. Deb....	97—100	...
200,000	Sept. 20	...	3½	Do. 3½ p.c. Red. Deb.	94—99	...
427,859	Apl. 25	1/2½	9½	S. Western Gas & Water Ord.	17/6—19/6	...
160,523	,,	-/10⅞	-/10⅞	Do. 4½ p.c. Red. Cum. Pf.	19/—21/–	...
110,000	Dec. 13	4	4	Do. 4 p.c. Red. Deb. ...	97—102	...
750,541	Feb. 7	5	5½	Southampton Ord. 5 p.c. ...	109—114	...
148,836	Dec. 13	4	4	Do. 4 p.c. Deb.	96—101	...
350,000	Feb. 7	5½	5½	Swansea 5½ p.c. Red. Pref. ...	108—113	...
94,000	Jan. 3	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
1,076,490	Feb. 7	6½	6½	Tottenham and District Ord.	126—131	...
409,835	,,	5½	5½	Do. 5½ p.c. Pref....	119—124	...
62,235	,,	5	5	Do. 5 p.c. Pref....	108—113	...
371,850	Dec. 13	4	4	Do. 4 p.c. Deb....	97—102	...
85,701	Apl. 25	6	6	Tuscan 6 p.c. Red. Deb. ...	95—100	...
888,629	Apl. 4	4	6	U. Kingdom Gas Cor. Ord....	18/6—20/6	...
937,743	May 9	4½	4½	Do. 4½ p.c. 1st Cum. Pref.	19/6—21/6*	...
500,000	,,	-/1·15	4	Do. 4 p.c. 1st Red. Cum. Pf.	19/—21/-*	...
745,263	Dec. 13	4½	4½	Do. 4½ p.c. 2nd Non-Cum.Pf.	16/6—18/6	...
1,000,000	Mar. 7	3½	3½	Do. 3½ p.c. Red. Deb. ...	96—99	...
373,939	Feb. 7	7	7	Uxbridge, &c., 5 p.c.	133—138	...
133,010	,,	5	5	Do. 5 p.c. Pref. ...	108—113	...
1,371,138	Feb. 7	7	7	Wandsworth Consolidated ...	137—142	...
2,525,768	,,	4	4	Do. 4 p.c. Pref. ...	96—101	...
1,343,964	Dec. 13	5	5	Do. 5 p.c. Deb. ...	116—121	...
383,745	,,	4	4	Do. 4 p.c. Deb. ...	98—103	...
558,342	Feb. 7	7	7	Watford and St. Albans Ord.	135—140	...
200,000	,	5	5	Do. 5 p.c. Pref. ...	110—115	...
200,000	,,	5½	5½	Do. 5½ p.c Pref. ...	120—125	...
200,000	Nov. 29	4	4	Do. 4 p.c. Red. Deb.	97—102	...
100,000	,,	3½	3½	Do. 3½ p.c. Red. Deb.	95—100	...

a.—The quotation is per £1 of stock. * Ex. div. † Paid free of income-tax ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Cont.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations May 13.	Rise or Fall on Week.
202,152	Mar. 21	5	5	Ascot Ord.	103—108	...
128,182	Dec. 13	5	5	Do. 5 p.c. Pref. ...	108—113	...
31,035	Mar. 21	...	-/4½	Associated Utilities 4 p.c. Pref.	16/—18/-	...
100,000	Dec. 13	...	3½	Do. 3½ p.c. Red. Deb....	95—100	...
17,000	Feb. 21	8	8	Bognor Orig. Ord. 'A' ...	155—165	...
62,210	,,	8	8	Do. New Addl. 'A' ...	155—165	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	152—157	...
37,440	Feb. 7	10	10	Cam. Univ. & Town 10 p.c. max.	190—200	...
125,970	,,	7	7	Do. 7 p.c. max.	135—140	...
39,025	,,	5	5	Do. 5 p.c. max.	97—102	...
96,410	Feb. 7	4½	4½	Cardiff 4½ p.c. Pref.	95—100	...
150,000	Feb. 21	4	4	Croydon 4 p.c. Pref.	95—100	...
130,000	Dec. 13	4	4	Do. 4 p.c. Deb.	97—102	...
65,000	Mar. 7	7½	8½	Eastbourne 'A' 5 p.c. ...	155—160	...
198,000	,,	6	7	Do. 'B' 3½ p.c.	125—130	—1
112,312	,,	5	5	Do. 5 p.c. Pref.	107—112	...
130,000	Dec. 13	5	5	Do. 5 p.c. Deb.	113—118	...
24,000	Feb. 21	8½	8½	Great Yarmouth 8½ p.c. max.	43—48	...
59,400	,,	7½	7½	Do. 7½ p.c. max.	33—38	...
51,160	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	125—130	...
152,600	Feb. 21	8	9	Guildford Cons.	167—172	...
54,055	,,	5	5	Do. 5 p.c. Pref.	108—113	...
68,250	Dec. 13	5	5	Do. 5 p.c. Deb.	112—117	...
156,600	Feb. 21	7½	7½	Hampton Court Cons. ...	140—150	...
80,000	Feb. 21	4	4	Lea Bridge 4 p.c. Pref ...	94—99	...
60,000	,,	6	6	Do. 6 p.c. Pref. ...	123—128	...
94,876	Dec. 13	4	4	Do. 4 p.c. Deb. ...	97—100	...
73,620	Mar. 7	8½	8½	Luton Cons. 'A'	160—165	...
107,960	Mar. 21	4	5½	Mid Kent Ord.	8½—9½	...
230,940	Feb. 7	10	10	Oxford & District Ord. ...	198—203	...
47,112	,,	5	5	Do. 5 p.c. Pref. ...	104—111	...
50,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	108—113	...
126,193	May 9	7½	7½	Peterborough Ord.	135—145*	—3
64,990	Mar. 7	6½	7½	Redditch Ord....	120—130	...
166,850	Feb. 7	8	8	Romford Ord....	148—153	...
60,000	,,	4	4	Do. 4 p.c. Pref.	97—100	...
44,000	Mar. 21	5	5	Do. 5 p.c. Deb.	111—116	...
25,570	Feb. 7	5½	5½	Rugby 5½ p.c. Pref.	123—128	...
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	103—108	...
42,750	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	120—125	...
10,950	Feb. 21	8	8	Ryde Ord.	140—150	...
270,086	Mar. 21	7	7	Slough Ord.	128—133	...
21,000	Dec. 13	5	5	Do. 5 p.c. Deb.	110—115	...
28,872	May 9	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	19/—21/-*	...
28,866	Mar. 7	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	18/6—20/6	...
137,730	Feb. 21	7	7	Southgate & Dist. 7 p.c. max.	135—140	...
62,500	,,	5	5	Do. 5 p.c. Pref.	110—115	...
117,228	Feb. 7	5	7	Swindon Cons.	104—109	...
60,425	Dec. 13	5	5	Do. 5 p.c. Deb.	110—115	...
64,380	Dec. 13	5	5	Torquay and Paignton 5 p.c. Pf.	108—113	...
33,858	May 9	-/2·70b	4½	United Kingdom Gas Corpn. 4½ p.c. 1st Cum. Pref. ...	18/—20/-*	...
130,000	Feb. 7	5	8	Wakefield Ord.	118—123	...
81,650	,,	5	5	Do. 5 p.c. max.	101—106	...
82,000	Feb. 21	6	6	Weymouth Ord.	105—110	...
98,384	Feb. 7	6	6	Wolverhampton 6 p.c. Pref....	118—123	...
160,000	Dec. 13	5½	5½	Do. 5½ p.c. Rd. Db.	107—112	...
90,000	Dec. 13	5	5	York 5 p.c. Red. Deb.... ...	104—109	...
133,640	Feb. 21	6½	6½	Yorktown (Cam.) 5 p.c. Cons.	120—125	...
120,000	,,	5	5	Do. 5 p.c. Pref.	106—111	...
35,000	Dec. 13	5½	5½	Do. 5½ p.c. Deb.	121—126	...

BRISTOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, May 13.	Rise or Fall on Week.
347,756	Feb. 7	5	6	Bath Cons.	120—122	...
1,667,250	Feb. 7	5	5	Bristol, 5 p.c. max.	115—117	...
120,420	Dec. 13	4	4	Do. 1st 4 p.c. Deb. ...	100—102	...
217,870	,,	4	4	Do. 2nd 4 p.c. Deb. ...	100—102	...
328,790	,,	5	5	Do. 5 p.c. Deb.	119—122	...
274,000	Feb. 21	5	5	Newport (Mon.) 5 p.c. max....	99—101	...
13,200	Mar. 21	7	8½	Pontyp'l Gas & W. 10 p.c. 'A'	12½—13½	...
13,600	,,	5	6	Do. 7 p.c. 'B'	11½—12½	...
40,000	,,	5	6	Do. 7 p.c. 'C'	11½—12½	...
140,778	Feb. 7	5	5	Weston-super-Mare Cons. ...	110—112	...
64,338	Jan. 3	4	4	Do. 4 p.c. Deb.	94½—96½	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	154—157	...

LIVERPOOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, May 13.	Rise or Fall on Week.
157,150	Feb. 7	5	6½	Chester 5 p.c. Ord.	103½—107½	...
92,500	Dec. 13	4	4	Do. 4 p.c. Pref.	96—100	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	88—91	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	97—101	...
2,167,410	Feb. 21	6	6	Liverpool 5 p.c. Ord.... ...	124—125	...
245,500	Dec. 13	5	5	Do. 5 p.c. Red. Pref. ...	99—104	...
306,083	Jan. 17	4	4	Do. 4 p.c. Deb. ...	100—102	...
106,280	Feb. 7	10	10	Preston 'A' 10 p.c.	202—212	...
188,219	,,	7	7	Do. 'B' 7 p.c.	144—154	...

NEWCASTLE EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, May 13.	Rise or Fall on Week.
122,577	Feb. 21	8	8	Blyth 5 p.c. Ord.	163½—164½	...
732,000	Feb. 21	5	5	Hartlepool G. & W. Cn. & New	110—112	...
2,061,315	Feb. 7	5	5½	Newcastle & Gateshead Con.	22/9—23/3a	—/6
682,856	,,	4	4	Do. 4 p.c. Pref. ...	99½—100½	...
776,706	Jan. 3	3½	3½	Do. 3½ p.c. Deb. ...	90—91	...
277,285	Nov. 1	5	5	Do. 5 p.c. Deb. '43...	103—105	...
332,351	Feb. 7	6	6	Sunderland 6 p.c. max. ...	137—139	...

NOTTINGHAM EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, May 13.	Rise or Fall on Week.
542,270	Feb. 21	6	9	Derby Con.	135—140	...
55,000	Dec. 13	4	4	Do. 4 p.c. Deb.	100—105	...
20,000	Dec. 13	5	5	Long Eaton 5 p.c. Pref. ...	10—12	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	105—110	...

SHEFFIELD EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, May 13.	Rise or Fall on Week.
10,000	Feb. 21	10	10	Great Grimsby 'A' Ord. ...	205—215	...
6,500	,,	10	10	Do. 'B' Ord. ...	205—215	...
79,000	,,	10	10	Do. 'C' Ord. ...	195—205	...
1,806,339	Feb. 21	6½	6½	Sheffield Cons.	139—142	...
95,000	Jan. 3	4	4	Do. 4 p.c. Deb.	102—104	...

a The quotation is per £1 of Stock. b Actual. * Ex div.

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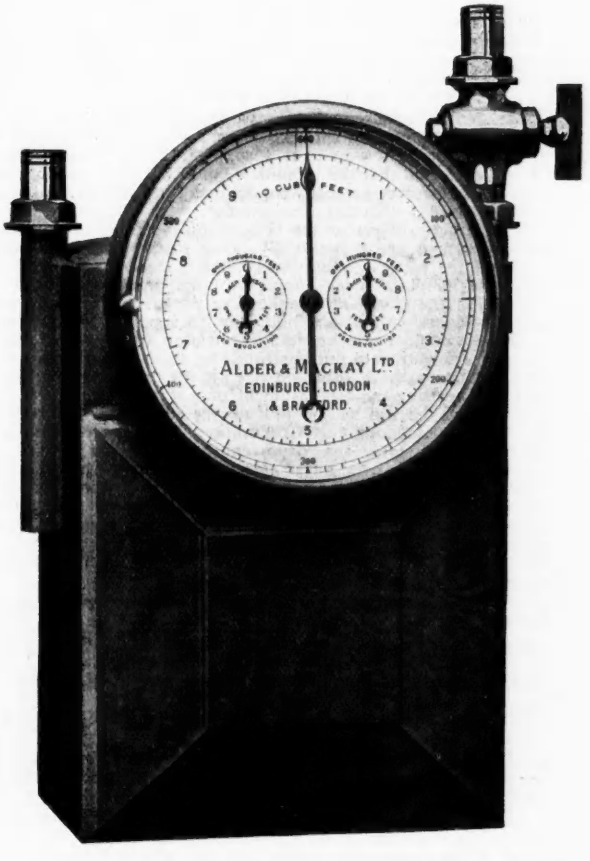

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Committee, said he had addressed himself to the present scheme as an independent person, as he had no interest in the area in any way. The proposal in this case to take supply from a large number of sources was a stabilizing factor in the supply and was one which could not be introduced by an individual undertaking. The scheme recommended itself to him as contributing to a wider use of gas for industrial purposes and assisting in other directions.

Mr. MAURICE FITZGERALD put it to Sir Alexander Walker that the amount of coke oven gas in the area was less to-day than it was at the time of the Area Gas Committee's Report, but Sir Alexander said he was not aware of that.

Mr. FITZGERALD also put it that whereas the Area Gas Committee was dealing with waste coke oven gas, in the present scheme the promoters were proposing eventually to spend money in erecting coke ovens for the specific purpose of making coke oven gas. He asked whether it would be any cheaper to make gas in a coke oven than in an ordinary gas-works.

Sir ALEXANDER WALKER replied that as far as he knew it was cheaper to produce gas in a coke oven plant than in a modern efficient gas-works. Purified gas at 7½d. per 1,000 cu.ft. was cheaper than anything that could be done in a gas-works, and although there was something to be added for the cost of transport of the coke oven gas, he still believed there was a big difference between the cost of the two types of gas.

Mr. THESIGER put questions with regard to the Report of the Committee which enquired into the use of coke oven gas in West Scotland—of which Sir Alexander was Chairman—and spoke of the difficulties mentioned in that connexion in manipulating coke oven gas of varying calorific values to give the calorific value of 470 B.Th.U. at Glasgow. He suggested the same difficulties would be experienced in the Yorkshire scheme.

Sir ALEXANDER WALKER said there could be no difficulty, and very little expense, in taking coke oven gases of varying calorific values and arranging them to give a figure of, say, 500 B.Th.U.

This closed the case for the Bill.

Case for the Opposition.

The first opposition dealt with was that of the Wakefield Gas Light Company.

Mr. H. F. BIDDER, addressing the Committee on behalf of that Company, said they did not oppose the proposed scheme on any narrow ground and say that if certain clause alterations were made they would be content. The view of his clients was not that the unification of this comparatively new source of supply of gas—in the sense of being regarded as universally distributable in bulk—should not be carried out by means of a grid. It would be absurd to say that. If this gas was to be distributed by a grid, however, it should be in the hands of an authority which could deal with this asset fairly and impartially as between the various undertakers in the area. In order to improve the service in the case of the undertakings which the United Kingdom Gas Corporation controlled, it was not necessary for this Bill, as everything required by way of linking up mains could be done by applications for Special Orders to the Board of Trade. According to Colonel Carr, that had been thought of, at first, but apparently it was subsequently thought that it would be much better that they should be given the power of being able to lay mains anywhere in the area to distribute coke oven gas, and it was not surprising that if such a proposal were put before the Board of Trade it should have been suggested that a Bill should be promoted. Under the Bill at first there was no limit or restraint on the promoters as to what they did with the coke oven gas when they got it, but a right had now been conferred on the undertakers in the area in which the coke oven plant was situated to demand a supply. In his view, however, that was not sufficient protection, and this great Company was out to get control of all the coke oven gas in the area, which they would obtain if they secured the powers to lay mains that were asked for.

Mr. JACQUES ABADY said there was nothing in the Bill which deprived any undertaking of the right it possessed to-day to enter into a contract with a coke oven proprietor for coke oven gas.

Mr. BIDDER pointed out that the area of the Wakefield Gas Company was bounded to a very large extent by the areas of companies controlled by the United Kingdom Gas Corporation, and his fear was that the Wakefield Gas Company would not get a fair chance of obtaining coke oven gas should it be required to assist in maintaining the efficient service which he claimed that Company had been giving for 100 years.

Mr. THESIGER, who appears for 10 local authorities owning gas undertakings, said that none of them would benefit from the first part of the scheme, and four of them would not benefit even when the full amount of capital had been expended. He claimed that these local gas undertakings had served the public well in the past, and there was no reason why this Company should be allowed into the area and possibly make it more difficult for these undertakings to continue to serve the public in the way they had for so many years. The proposal would give the new Company practically a corner in coke oven gas, and by erecting new coke oven works would be bringing into the area more coke in competition with ordinary gas-works coke. If this grid were to be administered by a Joint Board upon which the local authorities were represented, there might be less objection to it, for at all events the scheme would be administered in an impartial manner, but in the circumstances in which the Bill came before the Committee he submitted there was no public justification whatever for the Bill.

Friday, May 13.

Mr. MAURICE FITZGERALD opened the case for 12 authorities who are opposing, including Leeds, Bradford, Halifax, and Huddersfield. He said the large area covered by his clients was highly industrialized, and yet the promoters were asking for powers to lay gas mains in any street or road in an area already covered by the existing gas undertakers. Although the promoters said this Bill depended upon co-operation, no evidence had been given that they had consulted any of the local authorities or gas undertakers concerned. Nor had any evidence been given showing that the existing gas undertakings were not fulfilling every public need and that they were not catering for every demand, domestic or whatever it might be. If, as the promoters suggested, the authorities whom he represented would desire to co-operate at some time or other with the promoters, they could lay their own mains to link up with the promoters, should the other part of the scheme be passed.

Mr. JACQUES ABADY said that in opening the Bill he had not said the promoters wanted to go into the areas represented by Mr. Fitzgerald for the purpose of giving a series of supplies to any individual undertaker who would co-operate. The mains would be laid as part of the system not only giving that supply, but to supply throughout the whole area. As regards the alternative suggested by Mr. Fitzgerald, that in the event of local authorities desiring to co-operate they could lay their own mains, there was nothing in the Bill to prevent them doing so, whether the promoters' mains were there or not.

Mr. FITZGERALD said that not a single contract had been put before the Committee showing there was any definite assurance that the promoters would get a supply of coke oven gas at all. It had been said that the promoters could not enter into contracts until Parliamentary powers were obtained, but that was fallacious, because local authorities, for instance, were constantly entering into contracts subject to the consent of the Minister of Health, and agreements were constantly being made subject to one or other of the parties getting Parliamentary powers. Moreover, in this case no duties were imposed on the promoters, yet it was asked that the Company should have powers to break up roads and lay mains without any obligation to supply. The promoters said they would come under an obligation to supply if the gas undertakers who were not controlled by them would come under an obligation to buy. But that was not the practice of Parliament when authorizing the establishment of a statutory company. The idea behind the Bill was to link up the subsidiary companies of the United Kingdom Gas Corporation, but in order to do so the promoters took the opportunity of putting forward this grandiose scheme over an immense area—about half of Yorkshire—asking for powers for an unlimited time without any binding idea of what scheme they proposed to carry out. If the promoters proceeded by Special Order before the Board of Trade, as they could do, they would have to produce a definite scheme, but that was not done in the case of this Bill, and he therefore asked that it should be rejected.

No evidence was called, and this concluded the proceedings on the Bill.

The Committee deliberated for half an hour, and the Chairman announced that the Bill could only proceed if it were limited to the areas already controlled by the United Kingdom Gas Corporation.

Mr. JACQUES ABADY asked if the Committee's decision applied to supply only, or also to mains, as it would be necessary to traverse areas in which the United Kingdom Corporation did not control the gas undertakings if all the Corporation's undertakings were to be linked up.

The CHAIRMAN, remarking that separate applications would have to be made for laying linking-up mains through other areas, asked if the promoters accepted the Bill according to the Committee's decision.

Clauses were then adjusted and the Bill was ordered to be reported for third reading.

Tuesday, May 17.

The Committee considered the Clauses on Tuesday, and the promoters were given power to take coke oven gas from the coke ovens of the Hemsworth and United Kingdom Coke Oven Company at Hemsworth—an area adjoining that covered by the Bill—and to lay a main from the coke ovens to the area covered by the Bill.